

**NORTH PORTLAND BIBLE COLLEGE SITE
INVESTIGATION REPORT**

JANUARY 27, 2006

**FOR
OREGON DEPARTMENT OF ENVIRONMENTAL
QUALITY**

**North Portland Bible College Site
Investigation Report
Portland, Oregon
File No. 2787-024-00**

January 27, 2006

Prepared for:

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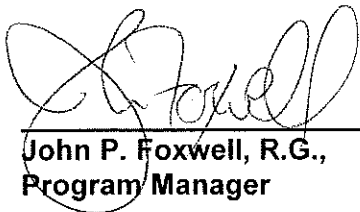
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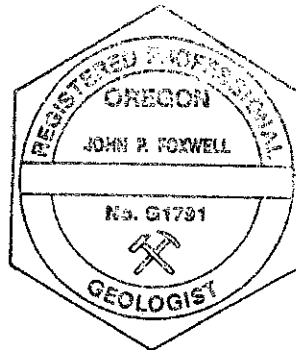
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**NORTH PORTLAND BIBLE COLLEGE
SITE INVESTIGATION REPORT
PORTLAND, OREGON
TASK ORDER 72-03-20**

1.0 INTRODUCTION

This report presents the results of the Site Investigation (SI) conducted at the North Portland Bible College property, located at the southwest corner of the intersection of North Vancouver Avenue and North Alberta Street, in Portland, Oregon (site). GeoEngineers conducted the work under Oregon Department of Environmental Quality Task Order No. 72-03-20 and in accordance with GeoEngineers' October 18, 2005 *North Portland Bible College Site Investigation Work Plan*. The work was being funded by a U.S. Environmental Protection Agency (EPA) Brownfield Assessment Grant.

The purpose of the SI was to: 1) assess whether there have been releases of hazardous substances at the site; 2) assess the nature and extent of soil contamination (if any) at the site; 3) assess potential risks to human health and the environment; 4) assess whether further investigation is necessary at the site and 5) assess whether interim removal action measures (IRAMs) are needed to reduce and/or eliminate hazardous substances in soil at the site.

2.0 BACKGROUND SUMMARY

The North Portland Bible College site is located at 4939 North Vancouver Avenue in Portland, Oregon. The site is in Multnomah County in the northeast quarter of Section 22, Township 1 North, Range 1 East, of the Willamette Meridian. The site is a vacant lot and is surrounded by residential and commercial facilities. The offices of the North Portland Bible College are located south of the site. A community garden and Humboldt Elementary School are located west of the site. Residences are located north and east of the site. The site layout is shown on Figure 2.

2.1 SITE HISTORY

According to historic Sanborn Maps, in 1934, the site was developed as a gasoline service station. Reportedly, the service station operated at the site until approximately 1953. The property was utilized as an automobile detail facility in 1974 and an automobile painting facility in 1978. In 1983, the site was vacated and in 1987, two approximately 6,000-gallon underground storage tanks (USTs) were reportedly removed from the site. There is no information indicating the contents of the USTs or whether contamination was present in the vicinity of the USTs. After 1987, the site was covered with a layer of gravel up to 3 feet thick.

Based on the historic presence of petroleum USTs at the site, contaminants of interest (COI) include gasoline, diesel, and heavy oil, as well as the following common petroleum constituents: volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and lead. Historic Sanborn maps indicate that a "grease area or grease area building" was located along the southern boundary of the property. Polychlorinated biphenyls (PCBs) are common constituents of oil and grease, and thus, are considered COI. Additionally, other metals (arsenic, barium, cadmium, chromium, copper, mercury, selenium, and silver) are considered COI due to historic automobile body repairs at the site.

3.0 SCOPE OF SERVICES

The specific scope of services completed for the SI include the following:

1. Conducted a standard one-call underground utility locate and completed a private underground utility locate prior to beginning work;
2. Completed 13 direct-push explorations to depths between 14 and 16 feet below ground surface (bgs) to assess the nature and extent of contamination in soil at the site;
3. Field screened soil for the presence of petroleum hydrocarbons and VOCs; Collected representative soil samples from the approximate upper 1 foot of native soil and at other selected depth intervals in subsurface explorations;
4. Submitted the soil samples to North Creek Analytical laboratory for chemical analysis of petroleum hydrocarbons by Northwest Method NWTPH-HCID. Shallow soil samples (collected from the upper one-foot of native soil) were additionally analyzed for RCRA-8 metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, and silver);
5. Submitted one soil sample for follow-up analyses of diesel- and heavy oil-range hydrocarbons by Northwest Method NWTPH-Dx, VOCs by EPA Method 8260B by EPA Method 8260B, PAHs by EPA Method 8270-SIM, polychlorinated biphenyls (PCBs) by EPA Method 8082, leachable cadmium, chromium, and lead by EPA Toxicity Characteristic Leaching Procedure (TCLP) and EPA 6000/7000 Series Methods, and extractable petroleum hydrocarbon fraction (EPH) by Washington State Department of Ecology (Ecology) methodology;
6. Recorded the horizontal location of each exploration using a sub-meter grade GPS system.
7. Prepared a preliminary conceptual site model (CSM); and
8. Prepared this report.

4.0 FIELD INVESTIGATION RESULTS

GeoEngineers conducted fieldwork at the site on November 21, 2005. During the SI, GeoEngineers monitored the completion of 13 direct-push explorations to depths between 14 and 16 feet bgs. Continuous soil samples were collected between the surface and bottom of each exploration. Approximate exploration locations are shown on Figure 2. Explorations were advanced using direct-push equipment owned and operated by ESN Northwest, Inc. of Olympia, Washington.

Details of the field exploration program, including soil sampling procedures and logs for the soil explorations are presented in Appendix A. Field screening was performed on soil samples obtained from the explorations. A description of the field screening methods is included in Appendix A. Field screening results are presented in the exploration logs. Laboratory reports are presented in Appendix B.

4.1 SOIL CONDITIONS

The upper 2 to 3 feet of soil at the site was apparent fill material consisting of angular gravel with some sand and silt. The gravel fill was underlain by sand with varying amounts of silt and occasional gravel which extended to the total depths explored. In exploration DP-8, a black organic-rich soil layer was encountered at 5 feet bgs, overlying concrete debris and sand (fill) between approximately 5.5 and 13 feet bgs. Groundwater was not encountered in any of the explorations.

4.2 SOIL ANALYTICAL RESULTS

A total of 26 soil samples were submitted for analysis of petroleum hydrocarbons by Northwest Method NWTPH-HCID and 13 soil samples were additionally submitted for analysis of metals by EPA 6000/7000 Series Methods. Soil chemical analytical data are summarized in Tables 1 through 6. Petroleum-range hydrocarbons (heavy oil - 2,810 milligrams per kilogram [mg/kg]) were detected in one sample [DP-8(4-5)]. Sample DP-8(4-5) was subsequently analyzed for VOCs, PAHs, PCBs, leachable

cadmium, chromium, and lead, and EPH. Neither VOCs, PAHs, nor PCBs, were detected in sample DP-8 (4-5). Leachable lead was detected at a concentration of 0.189 milligrams per liter (mg/l).

The Oregon Department of Environmental Quality has not established generic Risk-Based Concentrations (RBCs) for heavy oil-range hydrocarbons. However, DEQ does provide a methodology to calculate a site-specific RBC for heavy oil-range hydrocarbons, based on the fractionation of EPH and the concentrations of selected VOCs in site sample(s). DEQ's *Calculating RBCs for Total Petroleum Hydrocarbons Workbook* (DEQ, 2003) indicates that the site-specific RBCs for total petroleum hydrocarbons at the site are as follow:

Sample	Detected TPH Concentration (mg/kg)	Site-Specific Risk-Based Concentration for Exposure via Soil Ingestion, Direct Contact, and Inhalation			
		Residential	Urban Residential	Occupational	Construction Worker
DP-8(4-5)	2,810	5,400	11,000	69,000	22,000

Note:

TPH = indicates total petroleum hydrocarbons (reported as heavy oil-range hydrocarbons)

Site-specific RBCs for other exposure pathways are not reported because the RBCs for other soil exposure pathways are greater than 100,000 mg/kg, a level that would only occur if all of the initial air space in the representative soil sample is filled with petroleum product. DEQ believes it is highly unlikely that such concentrations will be encountered (DEQ, 2003). The extractable petroleum hydrocarbons data for sample DP-8 (4-5) are summarized in Table 1. Output from DEQ's *Calculating RBCs for Total Petroleum Hydrocarbons Workbook* is included in Appendix B.

Arsenic, barium, chromium, copper, and lead were detected in all soil samples submitted for analysis. None of the detected metals concentrations exceeded DEQ Default Background Concentrations for Metals (DEQ, 2002), with the exception of the concentrations of lead detected in soil samples from DP-6, DP-7, and DP-8. However, the concentrations of lead detected in samples DP-6, DP-7, and DP-8 (maximum 23.5 mg/kg) were all less than the generic RBC for residential exposure via direct contact, DEQ's most conservative generic RBC for lead in soil. Metals data for soil are summarized in Table 2.

5.0 RISK SCREENING

Data collected during the SI indicate that petroleum hydrocarbons and metals are not present in soil at concentrations that exceed acceptable risk levels under DEQ's most conservative risk-screening criteria (residential direct contact). Based on chemical analytical data collected during the SI, we draw the following conclusions:

- Chemicals detected at the site (heavy oil and metals) exhibit little to no volatility. Thus, there is little risk from exposure through the vapor intrusion to indoor air and volatilization to outdoor air exposure pathways;
- Groundwater was not observed at the site. Based on regional data, groundwater is anticipated at approximately 50 feet bgs, well below the depth (4-5 feet) where contaminants were detected at the site. Thus, there appears to be minimal risk of human exposure via the leaching to groundwater pathway; and

- Exposure via direct contact is possible. However, the depth at which petroleum hydrocarbons was detected (4-5 feet bgs) is below the depth (3 feet bgs) that DEQ generally considers accessible to residents or occupational receptors (excluding construction or excavation workers). Thus, there is minimal risk from exposure to residents or occupational receptors. Furthermore, the level of heavy oil-range hydrocarbons detected at the site (2,810 mg/kg) is less than DEQ's most conservative site-specific RBC for direct contact. The site specific RBC indicates that, in the unlikely case that people come into direct contact with the heavy oil-range hydrocarbons, they would not be posed to unacceptable risk.

One sample [DP-8 (4-5)] collected between 4 and 5 feet bgs exhibited petroleum contamination. Based on the sample depth (1 to 3 feet below native grade) and the presence of fill in exploration DP-8, it appears that the petroleum detected in sample DP-8 (4-5) is not associated with a UST release. Petroleum hydrocarbons were not detected in surrounding explorations (DP-6, DP-9, DP-12, and DP-13), suggesting that it is unlikely there is a widespread source of contamination in the vicinity of exploration DP-8.

We did not collect groundwater samples during the SI because groundwater was not encountered in any of the explorations. Groundwater is expected to be present at approximately 50 feet bgs.

6.0 CONCLUSIONS

Data collected during the SI indicate that petroleum contamination is absent from most of the site. Heavy oil contamination (2,810 mg/kg) was detected in soil collected between 4 and 5 feet in one location (DP-8). However, the concentration of heavy oil in that sample does not exceed any site-specific soil RBCs. Thus, it appears that soil at the site does not pose an unacceptable risk.

Based on the inferred depth to groundwater and the absence of petroleum contamination at depth in exploration DP-8, it appears unlikely that site-derived contaminants have impacted groundwater.

Based on the data collected during the SI, we do not recommend further assessment activities or interim removal actions. In the future, if the site is redeveloped, petroleum contaminated soil (if encountered) should be managed as petroleum-contaminated soil and transported and disposed of at an appropriate facility.

7.0 LIMITATIONS

We have prepared this report for the exclusive use of the Oregon Department of Environmental Quality.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to the appendix titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

8.0 REFERENCES

- GeoEngineers, October 18, 2005. North Portland Bible College Site Investigation Work Plan.
- Oregon Department of Environmental Quality, October 28, 2002. Default Background Concentrations for Metals, Memo to DEQ Cleanup Project Managers.
- Oregon Department of Environmental Quality, December 17, 2003. Calculating Risk-Based Concentrations for Total Petroleum Hydrocarbons; Microsoft Excel work book, available at <http://www.deq.state.or.us/wmc/tank/documents/TPHRisk03a.xls>.
- Oregon Department of Environmental Quality, 2003. Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites.

TABLE 1
SUMMARY OF CHEMICAL ANALYTICAL DATA¹
PETROLEUM HYDROCARBONS AND LEACHABLE METALS IN SOIL
 NORTH PORTLAND BIBLE COLLEGE SITE INVESTIGATION
 PORTLAND, OREGON

Sample Identification	Date Sampled	Sample Depth (feet bgs)	Hydrocarbon Identification (Northwest Method NWTPH-HCID) (mg/kg)			Diesel- and Oil-range Hydrocarbons (Northwest Method NWTPH-Dx) (mg/kg)		Leachable Metals (EPA TCLP Method 1311/6020) (mg/l)		
			Gasoline	Diesel	Oil	Diesel	Oil	Cadmium	Chromium	Lead
DP-1(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-1(7-8)	11/21/05	7-8	ND	ND	ND	--	--	--	--	--
DP-2(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-2(6-7)	11/21/05	6-7	ND	ND	ND	--	--	--	--	--
DP-3(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-3(7-8)	11/21/05	7-8	ND	ND	ND	--	--	--	--	--
DP-4(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-4(12-13)	11/21/05	12-13	ND	ND	ND	--	--	--	--	--
DP-5(2-3)	11/21/05	2-3	ND	ND	ND	--	--	--	--	--
DP-5(11-12)	11/21/05	11-12	ND	ND	ND	--	--	--	--	--
DP-6(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-6(11-12)	11/21/05	11-12	ND	ND	ND	--	--	--	--	--
DP-7(2-3)	11/21/05	2-3	ND	ND	ND	--	--	--	--	--
DP-7(11-12)	11/21/05	11-12	ND	ND	ND	--	--	--	--	--
DP-8(4-5)	11/21/05	4-5	ND	Detected	Detected	<1,410	2,810	<0.0200	<0.0500	0.189
DP-8(13-14)	11/21/05	13-14	ND	ND	ND	--	--	--	--	--
DP-9(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-9(6.5-7.5)	11/21/05	6.5-7.5	ND	ND	ND	--	--	--	--	--
DP-10(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-10(7-8)	11/21/05	7-8	ND	ND	ND	--	--	--	--	--
DP-11(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-11(13-14)	11/21/05	13-14	ND	ND	ND	--	--	--	--	--
DP-12(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-12(13-14)	11/21/05	13-14	ND	ND	ND	--	--	--	--	--
DP-13(3-4)	11/21/05	3-4	ND	ND	ND	--	--	--	--	--
DP-13(13-14)	11/21/05	13-14	ND	ND	ND	--	--	--	--	--
Applicable DEQ Risk-based Concentrations²										
Surface Soil Ingestion, Dermal Contact and Inhalation										
Residential			720	3,900	NE	3,900	NE	NA	NA	NA
Urban Residential			1,500	8,300	NE	8,300	NE	NA	NA	NA
Occupational			22,000	70,000	NE	70,000	NE	NA	NA	NA
Construction Worker			13,000	23,000	NE	23,000	NE	NA	NA	NA
Excavation Worker			-- ³	-- ³	NE	-- ³	NE	NA	NA	NA
Volatilization to Outdoor Air										
Residential			4,500	-- ³	NE	-- ³	NE	NA	NA	NA
Urban Residential			4,500	-- ³	NE	-- ³	NE	NA	NA	NA
Occupational			80,000	-- ³	NE	-- ³	NE	NA	NA	NA
Vapor Intrusion into Buildings										
Residential			140	-- ³	NE	-- ³	NE	NA	NA	NA
Urban Residential			140	-- ³	NE	-- ³	NE	NA	NA	NA
Occupational			-- ³	-- ³	NE	-- ³	NE	NA	NA	NA
Leaching to Groundwater										
Residential			26	2,800	NE	2,800	NE	NA	NA	NA
Urban Residential			26	2,800	NE	2,800	NE	NA	NA	NA
Occupational			110	-- ³	NE	-- ³	NE	NA	NA	NA

Notes:

¹Chemical analyses were conducted by North Creek Analytical of Beaverton, Oregon.

²Oregon Department of Environmental Quality. Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites. September 2003.

³The constituent RBC for this pathway is greater than 100,000 mg/kg. The Total Petroleum Hydrocarbon RBC is greater than the maximum amount that would be present if all of the initial air space is filled with petroleum product. The DEQ believes it is highly unlikely that such concentrations will ever be encountered.

bgs = below ground surface

TCLP = toxicity characteristic leaching procedure

mg/kg = milligrams per kilogram

NE = Not established

NA = This pathway is not applicable to the chemical of interest.

--" = not analyzed

"<1.0" indicates analyte not detected above the method reporting limit.

EPA = U.S. Environmental Protection Agency

RBC = Risk-based concentration.

DEQ = Oregon Department of Environmental Quality

Bold indicates analyte detection.

Shading indicates concentration exceeds at least one DEQ RBC.

TABLE 2
SUMMARY OF CHEMICAL ANALYTICAL DATA¹
VOLATILE ORGANIC COMPOUNDS IN SOIL
NORTH PORTLAND BIBLE COLLEGE SITE INVESTIGATION
PORTLAND, OREGON

	Volatile Organic Compounds (EPA Method 8260B) (mg/kg)	Risk-Based Concentrations (RBCs) ² (mg/kg)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		Soil Ingestion, Dermal Contact, and Inhalation						Volatilization to Outdoor Air			Vapor Intrusion into Buildings			Leaching to Groundwater																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		Residential	Urban Residential	Occupational	Construction Worker	Excavation Worker	Residential	Urban Residential	Occupational	Residential	Urban Residential	Occupational	Residential	Urban Residential	Occupational																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Analyte	DP-8 (4-5)	1,1,1,2-Tetrachloroethane	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE</

TABLE 2
SUMMARY OF CHEMICAL ANALYTICAL DATA¹
VOLATILE ORGANIC COMPOUNDS IN SOIL
NORTH PORTLAND BIBLE COLLEGE SITE INVESTIGATION
PORTLAND, OREGON

Analyte	Volatile Organic Compounds (EPA Method 8260B) (mg/kg)		Risk-Based Concentrations (RBCs) ² (mg/kg)											
			Soil Ingestion, Dermal Contact, and Inhalation				Volatilization to Outdoor Air			Vapor Intrusion into Buildings			Leaching to Groundwater	
	Residential	Urban Residential	Occupational	Construction Worker	Excavation Worker	Residential	Urban Residential	Occupational	Residential	Urban Residential	Occupational	Residential	Urban Residential	Occupational
DP-8 (4-5)	Ethylbenzene	4,000	8,100	74,000	28,000	-- ⁴	-- ³	-- ³	-- ³	-- ³	-- ³	160	160	-- ³
	Hexachlorobutadiene	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	Isopropylbenzene	2,300	4,500	51,000	24,000	-- ⁴	-- ³	-- ³	-- ³	-- ³	-- ³	-- ³	-- ³	-- ³
	m,p-Xylene	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	Methyl tert-butyl ether (MTBE)	150	500	760	9,000	-- ⁴	130	270	720	2.1	4.4	35	0.050	0.10
	Methylene chloride	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	n-Butylbenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	n-Propylbenzene	840	1,700	19,000	9,300	-- ⁴	-- ³	-- ³	-- ³	-- ³	-- ³	-- ³	-- ³	-- ³
	Naphthalene	34	67	770	710	20,000	240	240	-- ³	290	290	-- ³	3.8	3.8
	o-Xylene	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	sec-Butylbenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	Styrene	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	tert-Butylbenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	Tetrachloroethene	1.1	3.0	5.1	40	1,100	11	23	62	0.088	0.19	1.5	0.0053	0.0093
	Toluene	2,600	5,300	68,000	39,000	-- ⁴	-- ³	-- ³	-- ³	180	180	-- ³	44	44
trans-1,2-Dichloroethene	420	840	9,700	4,600	-- ⁴	2,300	2,300	-- ³	19	19	230	2.9	2.9	
trans-1,3-Dichloropropene	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Trichloroethene	0.67	2.3	3.4	41	1,100	0.57	1.2	3.3	0.0055	0.012	0.094	0.0017	0.0034	
Trichlorofluoromethane	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Vinyl chloride	0.33	0.73	3.7	29	800	4.6	5.5	82	0.037	0.045	2.0	0.00048	0.00057	
Total Xylenes	790	1,600	24,000	19,000	-- ⁴	-- ³	-- ³	-- ³	110	110	-- ³	25	25	

Notes:

¹Chemical analyses conducted by North Creek Analytical of Beaverton, Oregon.

²Oregon Department of Environmental Quality. Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites. September 22, 2003.

³This RBC exceeds the limit of three-phase equilibrium partitioning (C_{sat}).³ Soil concentrations in excess of C_{sat} indicate that free product might be present.

⁴The RBC for this pathway is greater than 100,000 mg/kg. The DEQ believes it is highly unlikely that such concentrations will ever be encountered.

TABLE 4
SUMMARY OF CHEMICAL ANALYTICAL DATA
POLYCHLORINATED BIPHENYLS IN SOIL
NORTH PORTLAND BIBLE COLLEGE SITE INVESTIGATION
PORTLAND, OREGON

Sample Identification	Date Sampled	EPA Method 8082 (mg/kg)					
		Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254
DP-8 (4-5)	11/21/2005	<0.0374	<0.0752	<0.0374	<0.0374	<0.0374	<0.0374
Applicable EPA Region 9 Preliminary Remediation Goals							
Residential Direct Contact ²		0.22	0.22	0.22	0.22	0.22	0.22
Industrial Direct Contact ²		0.74	0.74	0.74	0.74	0.74	0.74

Notes:

¹Chemical analyses were conducted by North Creek Analytical of Beaverton, Oregon.

²Preliminary remediation goals are for an unspecified high risk mixture (e.g. Aroclor 1254)

mg/kg = milligrams per kilogram

"<1.0" indicates analyte not detected above the method reporting limit.

EPA = U.S. Environmental Protection Agency

TABLE 5
SUMMARY OF CHEMICAL ANALYTICAL DATA¹
PROJECT METALS IN SOIL
 NORTH PORTLAND BIBLE COLLEGE SITE INVESTIGATION
 PORTLAND, OREGON

Metals (Mercury - EPA Method 7471A; Other Metals - EPA Method 6020) (mg/kg)											
Sample Identification	Date Sampled	Depth of Sample (feet bgs)	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver
DP-1(3-4)	11/21/05	3-4	2.45	279	<0.609	20.2	29.2	5.56	<0.0942	<0.609	<0.609
DP-2(3-4)	11/21/05	3-4	1.90	224	<0.579	16.9	27.3	5.13	<0.0713	<0.579	<0.579
DP-3(3-4)	11/21/05	3-4	1.94	211	<0.620	17.4	33.6	4.60	<0.0885	<0.620	<0.620
DP-4(3-4)	11/21/05	3-4	1.40	206	<0.635	13.3	23.4	4.00	<0.108	<0.635	<0.635
DP-5(2-3)	11/21/05	2-3	2.43	269	<0.629	21.8	23.3	20.9	<0.0656	<0.629	<0.629
DP-6(3-4)	11/21/05	3-4	2.79	172	<0.653	20.0	17.0	23.5	<0.0912	<0.653	<0.653
DP-7(2-3)	11/21/05	2-3	2.87	230	<2.98	22.6	18.7	19.5	<0.0735	<0.596	<0.596
DP-8(4-5)	11/21/05	4-5	1.36	76.3	<0.542	9.65	16.4	25.4	<0.0762	<0.542	<0.542
DP-9(3-4)	11/21/05	3-4	3.67	296	<0.643	27.5	22.9	6.47	<0.103	<0.643	<0.643
DP-10(3-4)	11/21/05	3-4	4.13	262	<0.661	29.0	24.1	7.19	<0.116	<0.661	<0.661
DP-11(3-4)	11/21/05	3-4	2.23	93.8	<0.558	14.1	16.5	4.10	<0.0942	<0.558	<0.558
DP-12(3-4)	11/21/05	3-4	2.13	86.7	<0.554	15.9	16.0	4.64	<0.0885	<0.554	<0.554
DP-13(3-4)	11/21/05	3-4	2.10	112	<0.588	11.2	20.9	6.67	<0.0967	<0.588	<0.588
Default Background Concentrations for Metals in Soil ²											
			7	NE	1	42	36	17	0.07	2	1
EPA Region IX PRGs for Residential Soil ³											
			0.39 ⁴	5,400	37	210	3,100	400	23	390	390

Notes:

¹Chemical analyses were conducted by North Creek Analytical, Inc. of Portland, Oregon.

²From DEQ Toxicology Workgroup Memo to DEQ Cleanup Program Managers (**date**)

³From EPA Region 9's Preliminary Remediation Goals, October 2004.

⁴The residential soil PRG for arsenic is below background concentrations.

NE = not established

mg/kg = milligrams per kilogram

bgs = below ground surface

<0.500 indicates analyte not detected above the method reporting limit.

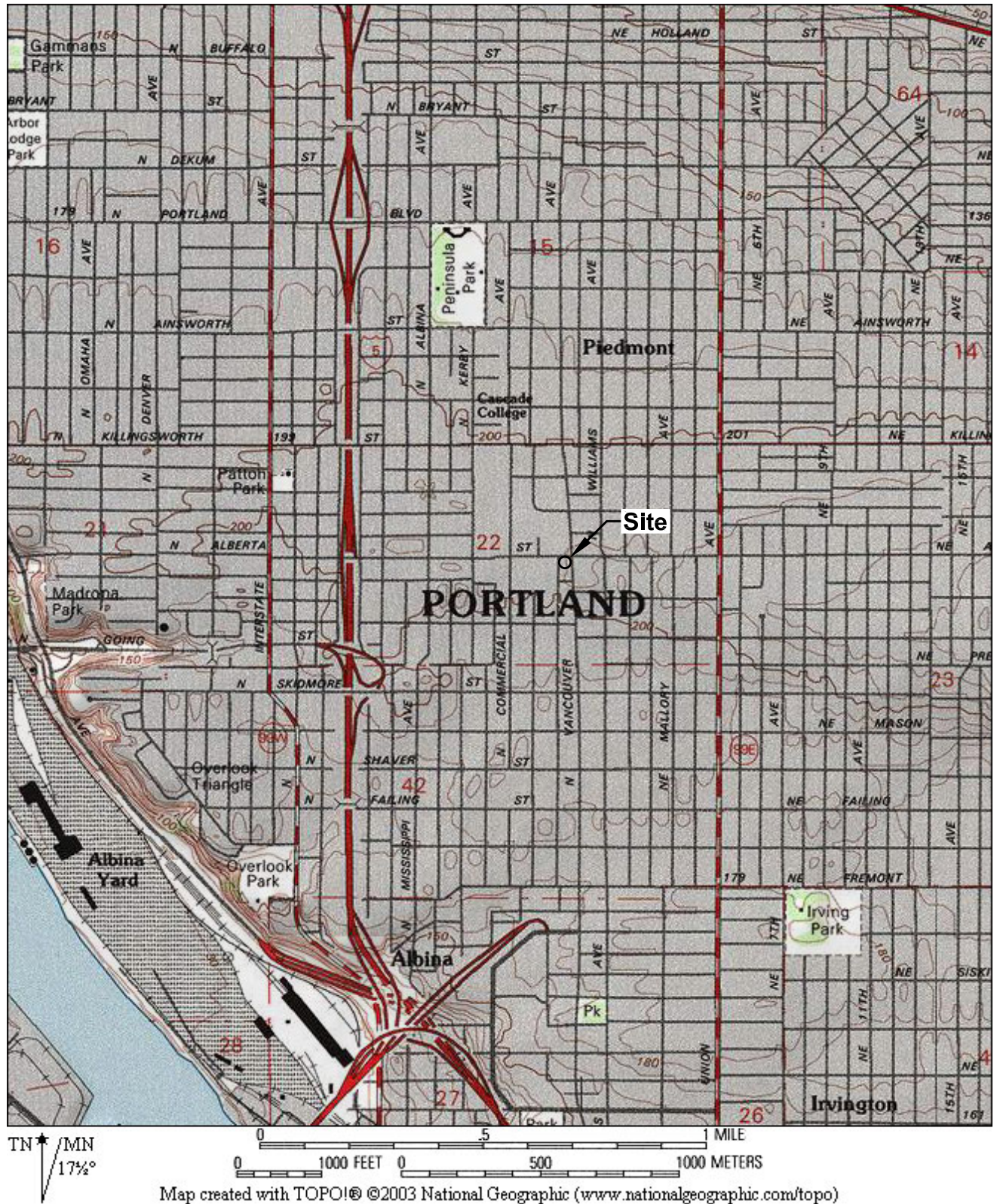
Bold indicates analyte detection.

TABLE 6
SUMMARY OF CHEMICAL ANALYTICAL DATA¹
PETROLEUM HYDROCARBONS AND LEACHABLE METALS IN SOIL
NORTH PORTLAND BIBLE COLLEGE SITE INVESTIGATION
PORTLAND, OREGON

Carbon Range	Extractable Petroleum Hydrocarbons (Washington Department of Ecology EPH Method)	
	(mg/kg)	
C8-C10 Aliphatics	DP-8 (4-5)	
C10-C12 Aliphatics	<22.6	
C12-C16 Aliphatics	6.26	
C16-C21 Aliphatics	74.3	
C21-C34 Aliphatics	134	
C8-C10 Aromatics	1,640	
C10-C12 Aromatics	<22.6	
C12-C16 Aromatics	<22.6	
C16-C21 Aromatics	<22.6	
C21-C34 Aromatics	61.7	
	698	

Notes:

¹Chemical analyses were conducted by North Creek Analytical of Beaverton, Oregon.
" <1.0" indicates analyte not detected above the method reporting limit.

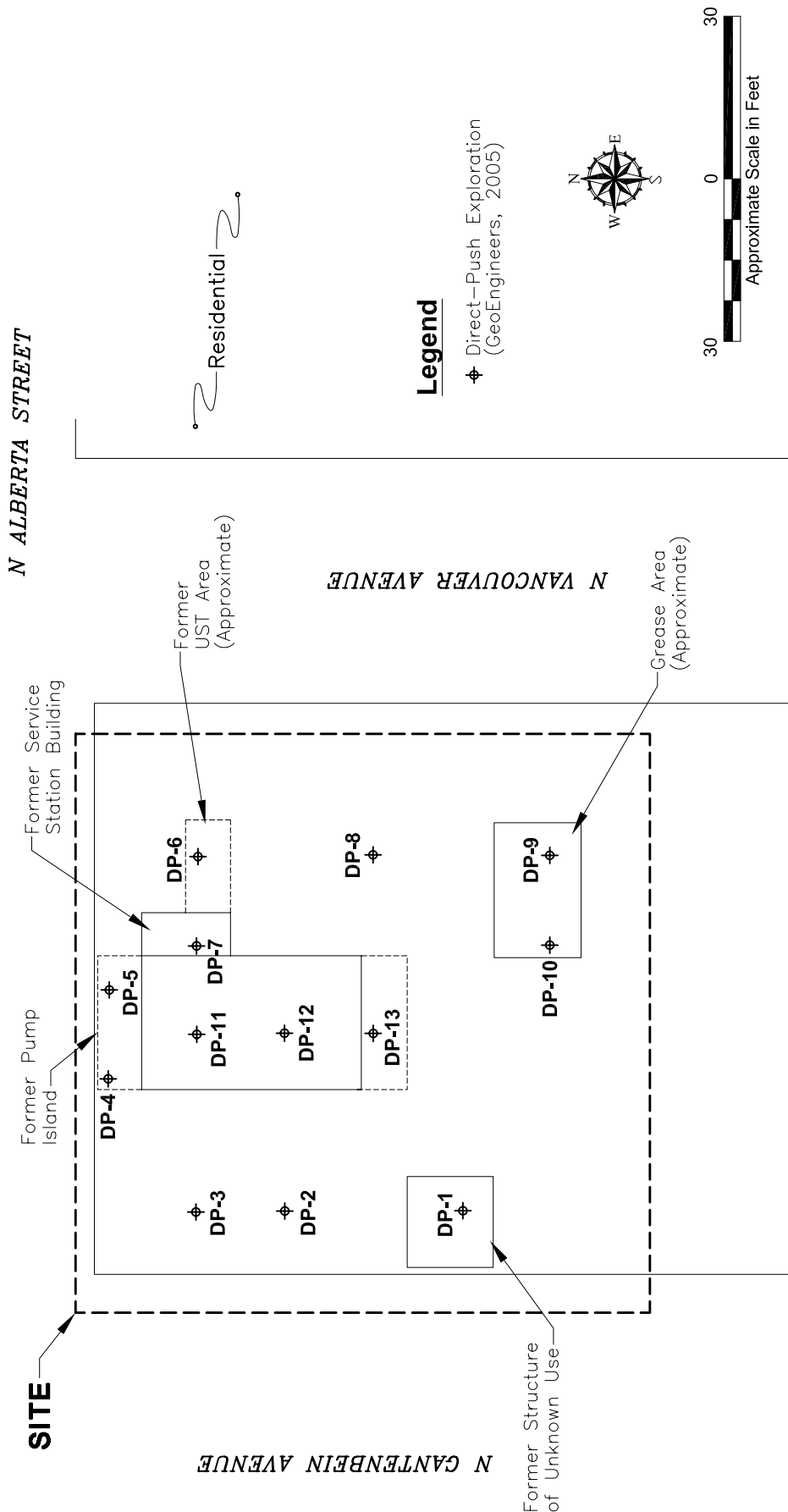


Vicinity Map

North Portland Bible College
Portland, Oregon

GEOENGINEERS

Figure 1



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Base maps provided by DEQ.

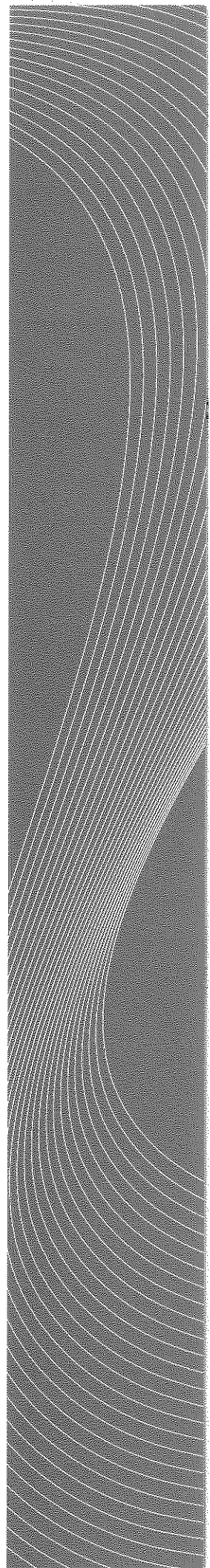
Exploration Locations	
North Portland Bible College Portland, Oregon	
 GEOENGINEERS	Figure 2



APPENDIX A

FIELD EXPLORATIONS

1. The purpose of this appendix is to provide a detailed description of the field explorations conducted during the project. This section includes a summary of the objectives, methods, and results of the explorations, as well as a discussion of the findings and their implications for the project.



APPENDIX A FIELD EXPLORATIONS

This appendix describes the field procedures used during the North Portland Bible College SI, and also includes all of the exploration logs. The field and sampling procedures included the following:

- Soil sampling from direct-push explorations;
- Field screening methods;
- Decontamination procedures;
- Handling of investigation-derived waste; and
- Location control

SOIL SAMPLING FROM DIRECT-PUSH EXPLORATIONS

Soil samples were continuously obtained from each exploration using a 4-foot-long, 1.5-inch inside diameter sealed steel sampler lined with clear acrylic sleeves. Depth discrete soil samples were obtained by pneumatically driving the sealed sampler to desired depth intervals. Sampling equipment was cleaned between each sampling attempt with a Liquinox wash and distilled water rinse. Used acrylic sleeves were discarded after each sampling attempt.

Upon recovery of the soil sample at selected locations, a portion of the soil was transferred directly from the acrylic sleeve into a laboratory-prepared sample container for chemical analysis. The sample jars were packed full to minimize headspace in the containers. The remaining portion of each sample was used for field screening tests and logged and classified in general accordance with American Society for Testing and Materials (ASTM) D 2488-90. The boring logs and an explanation of the boring log symbols are presented in this Appendix. Soil samples prepared for chemical analysis were placed in an iced cooler and kept cool until delivery to the laboratory. Chain-of-custody procedures were followed in transporting the soil samples to the laboratory.

FIELD SCREENING OF SOIL SAMPLES

Our field representative performed field screening tests on the soil samples obtained from the soil borings. Field screening results are used as a general guideline to assess areas of possible VOC contamination. In addition, field screening results are used to aid in the selection of soil samples for chemical analysis. The field screening methods used include: 1) visual screening, 2) water sheen screening, and 3) headspace vapor screening using a MiniRae PID, calibrated to isobutylene. The results of headspace and sheen screening are included on the boring logs.

Visual screening consists of observing soil for stains indicative of some types of contamination. Water sheen and headspace vapor screening are more sensitive screening methods.

Water sheen screening involves placing soil in a pan of water and observing the water surface for signs of sheen. Sheen screening may detect both volatile and nonvolatile petroleum hydrocarbons. Sheens observed are classified as follows:

- No Sheen (NS) No visible sheen on the water surface.
- Slight Sheen (SS) Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil may produce a slight sheen.

- Moderate Sheen (MS) Light to heavy sheen; may have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on the water surface.
- Heavy Sheen (HS) Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag, and the bag is shaken to expose the soil to the air trapped in the bag. Headspace vapor screening targets volatile petroleum hydrocarbon compounds. In this application, the PID measures concentration of organic vapors ionizable by a 10.6 electron volt (eV) lamp in the range between 1.0 and 2,000 parts per million (ppm), with a resolution of +/- 2 ppm.

Field screening results are site- and boring-specific. The effectiveness of field screening varies with temperature, moisture content, organic content, soil type and type and age of contaminant. The presence or absence of a sheen or headspace vapors does not necessarily indicate the presence or absence of petroleum hydrocarbons.

DECONTAMINATION PROCEDURES

The objective of the decontamination procedure was to minimize the potential for cross-contamination between exploration locations and between individual samples within a specific exploration.

A designated decontamination area was established for decontamination of drilling equipment and reusable sampling equipment.

Sampling or measurement equipment were decontaminated in accordance with the following procedures before each sampling attempt or measurement.

1. Brush equipment with a wire brush, if necessary, to remove large particulate matter.
2. Rinse with potable tap water.
3. Wash with nonphosphate detergent solution (Liquinox and potable tap water).
4. Rinse with potable tap water.

Well purging equipment was decontaminated between each boring.

HANDLING OF INVESTIGATION-DERIVED WASTE

Investigation-derived waste (IDW) consisted of drill cuttings and decontamination water. The soil cuttings and decontamination water were placed in a U.S. Department of Transportation (DOT)-approved 30-gallon drum. The drum was labeled with the project name, general contents and date. The soil and groundwater are stored at the site pending waste designation.

Disposable items, such as sample tubing, direct-push sampler acrylic sleeves, gloves and protective overalls, paper towels, etc., were placed in plastic bags after use and deposited in trash receptacles for disposal.

LOCATION CONTROL

Horizontal control for the exploration locations was established by GeoEngineers personnel using measurements from fixed site features and based on information obtained with a sub-meter grade Global Positioning System meter. The location control data are included in Table A-1.

TABLE A-1
EXPLORATION COORDINATES
SITE INVESTIGATION
NORTH PORTLAND BIBLE COLLEGE
PORTLAND, OREGON

Location	Longitude	Latitude
DP-1	-122.668792	45.55883313
DP-2	-122.6687781	45.55890123
DP-3	-122.6687893	45.55895579
DP-4	-122.6686535	45.55898838
DP-5	-122.6685778	45.55897827
DP-6	-122.6685068	45.558959
DP-7	-122.6685554	45.5589572
DP-8	-122.6685184	45.55887424
DP-9	-122.6684855	45.55876763
DP-10	-122.6685474	45.55876037
DP-11	-122.6686199	45.55895619
DP-12	-122.6686142	45.55890621
DP-13	-122.6686072	45.55886262

Note:
Datum: WGS 1984

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES	
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES	
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE			GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES	
		SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
					SP	POORLY-GRADED SANDS, GRAVELLY SAND
FINE GRAINED SOILS	SILTS AND CLAYS	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES	
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
	MORE THAN 50% PASSING NO. 200 SIEVE	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY	
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS		
			CH	INORGANIC CLAYS OF HIGH PLASTICITY		
			OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY		
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

- 2.4-inch I.D. split barrel
- Standard Penetration Test (SPT)
- Shelby tube
- Piston
- Direct-Push
- Bulk or grab

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS		TYPICAL DESCRIPTIONS
GRAPH	LETTER	
	CC	Cement Concrete
	AC	Asphalt Concrete
	CR	Crushed Rock/Quarry Spalls
	TS	Topsoil/Forest Duff/Sod



Measured groundwater level in exploration, well, or piezometer



Groundwater observed at time of exploration



Perched water observed at time of exploration



Measured free product in well or piezometer

Stratigraphic Contact

- Distinct contact between soil strata or geologic units
- Gradual change between soil strata or geologic units
- Approximate location of soil strata change within a geologic soil unit

Laboratory / Field Tests

- %F Percent fines
- AL Atterberg limits
- CA Chemical analysis
- CP Laboratory compaction test
- CS Consolidation test
- DS Direct shear
- HA Hydrometer analysis
- MC Moisture content
- MD Moisture content and dry density
- OC Organic content
- PM Permeability or hydraulic conductivity
- PP Pocket penetrometer
- SA Sieve analysis
- TX Triaxial compression
- UC Unconfined compression
- VS Vane shear

Sheen Classification

- NS No Visible Sheen
- SS Slight Sheen
- MS Moderate Sheen
- HS Heavy Sheen
- NT Not Tested

KEY TO EXPLORATION LOGS

GEOENGINEERS

FIGURE A-1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	14	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES					Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level				
0	48						GW			
				1	CA			VSS	<10	DP-2 (3-4)
48							ML			
				2	CA			VSS	<10	DP-2 (6-7)
	48			3				VSS	<10	
10										
	12			4			SW			
								NS	<10	
15										
20										

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-2



Project: Department of Environmental Quality
Project Location: Portland, Oregon
Project Number: 2787-024-00

Figure: A- 3
Sheet 1 of 1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES					Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing					
0	48					GW	Gray fine to coarse gravel (moist) (fill)			
				1	CA	SM	Brown fine silty sand (moist)	VSS	<10	DP-3 (3-4)
5	48					SW	Brown fine sand (moist)			
				2	CA			VSS	<10	DP-3 (7-8)
	48									
10				3		SP	Brown fine sand with gravel (moist)	VSS	<10	
	48			4			Brown medium to coarse sand (moist)	NS	<10	
15										
20										

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-3



Project: Department of Environmental Quality
Project Location: Portland, Oregon
Project Number: 2787-024-00

Figure: A- 4
Sheet 1 of 1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES					Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing					
0	48					GW	Gray fine to coarse gravel (moist) (fill)			
48			1		CA	SM	Brown fine silty sand (moist)	VSS	<10	DP-3 (3-4)
5										
48						ML	Brown sandy silt (moist)			
10										
48			2		CA	SP-SM	Brown fine sand with silt (moist)	VSS	<10	DP-3 (12-13)
			3			SP	Brown medium to coarse sand (moist)	NS	<10	
15										
20										

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-4



Project: Department of Environmental Quality
Project Location: Portland, Oregon
Project Number: 2787-024-00

Figure: A- 5
Sheet 1 of 1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES					Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing							
0	48							GW	Gray fine to coarse gravel (moist) (fill)			
				1	CA			ML	Brown silt (moist)	VSS	<10	DP-5 (2-3)
48				2				OL	Black organic soil (2 inches) (moist)	VSS	<10	
5								SP	Gray fine sand with gravel (moist)			
48												
10				3	CA			SP-SM	Brown fine sand with silt (moist)	VSS	<10	DP-5 (11-12)
48								SP	Brown medium to coarse sand (moist)			
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-5



Project: Department of Environmental Quality
 Project Location: Portland, Oregon
 Project Number: 2787-024-00

Figure: A-6
 Sheet 1 of 1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES					Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing					
0	48					GW	Gray fine to coarse gravel (moist) (fill)			
5	48		1	CA		ML	Brown fine silt (moist)	VSS	<10	DP-6 (3-4)
10	24		2			SP	Brown fine silt (moist)	SS	<10	
15	48		3	CA				VSS	<10	DP-6 (11-12)
			4				Brown medium to coarse sand (moist)			
20										

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-6



Project: Department of Environmental Quality
Project Location: Portland, Oregon
Project Number: 2787-024-00

Figure: A- 7
Sheet 1 of 1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	16.5	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES					Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level					
0	36					GW	Gray fine to coarse gravel (moist) (fill)			
			1	CA		ML	Brown silt	NS	<10	DP-7 (2-3)
5	36									
			2			SP-SM	Brown fine to medium sand with silt (moist)	VSS	<10	
10	24									
			3	CA			Brown medium to coarse sand with silt (moist)	VSS	<10	DP-7 (11-12)
15	36									
20										

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-7



Project: Department of Environmental Quality
 Project Location: Portland, Oregon
 Project Number: 2787-024-00

Figure: A- 8
 Sheet 1 of 1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	14	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES					Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log			
0	48									
48			1		CA					
5						ML	Brown silt (moist)	VSS	<10	DP-8 (4-5)
24						OL GW	Black organic soil with black angular coarse gravel Black angular coarse gravel with silt and sand (moist) (fill)			
10							Concrete debris			
12							Concrete debris			
15					2	CA		NS	<10	DP-8 (13-14)
20										

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-8



Project: Department of Environmental Quality
 Project Location: Portland, Oregon
 Project Number: 2787-024-00

Figure: A- 9
 Sheet 1 of 1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES				Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing						
0	48						GW	Gray fine to coarse gravel (moist) (fill)			
							ML	Brown silt (moist)	NS	<10	DP-10 (3-4)
5	48		1		CA		SP	Brown fine sand (moist)	SS	<10	DP-12 (7-8)
				2	CA		SW	Brown fine to coarse sand (moist)	VSS	<10	
10	48										
				3							
15	48										
20											

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-10



Project: Department of Environmental Quality
Project Location: Portland, Oregon
Project Number: 2787-024-00

Figure: A- 11
Sheet 1 of 1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES					Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing					
0	36					GW	Gray fine to coarse gravel (moist) (fill)			
48			1		CA	SM	Brown silty fine sand (moist)	VSS	<10	DP-11 (3-4)
36			2			SP	Brown fine to medium sand (moist)	VSS	<10	
48			3		CA		Brown medium to coarse sand (moist)	NS	<10	DP-11 (13-14)

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-11



Project: Department of Environmental Quality
Project Location: Portland, Oregon
Project Number: 2787-024-00

Figure: A- 12
Sheet 1 of 1

Date(s) Drilled	11/21/05	Logged By	AJR	Checked By	CWB
Drilling Contractor	ESN Northwest	Drilling Method	Direct-Push	Sampling Methods	4-foot Macro Sampler with Acrylic Sleeves
Auger Data		Hammer Data		Drilling Equipment	Powerprobe 5500
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES					Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing					
0	48					GW	Gray fine to coarse gravel (moist) (fill)			
48			1		CA	SP-SM	Brown fine sand with silt (moist)	VSS	<10	DP-12 (3-4)
48						SP	Brown medium sand (moist)			
10			2				Brown fine to medium sand (moist)	VSS	<10	
48			3		CA			VSS	<10	DP-12 (13-14)
15							Brown medium to coarse sand (moist)			
20										

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING DP-12



Project: Department of Environmental Quality
Project Location: Portland, Oregon
Project Number: 2787-024-00

Figure: A- 13
Sheet 1 of 1



APPENDIX B ***CHEMICAL ANALYTICAL PROGRAM***

Appendix B: Chemical Analytical Program

APPENDIX B CHEMICAL ANALYTICAL PROGRAM

SAMPLES

Chain-of-custody procedures were followed during the transport of the field samples to the accredited analytical laboratories. The samples were held in cold storage pending extraction and/or analysis. The analytical results and quality control records are included in this attachment.

FIELD QUALITY ASSURANCE

Field quality assurance consisted of:

- Collection and analysis of a field rinsate blank;
- Analysis of a trip blank; and
- Maintenance of chain-of-custody.

Field QA data are summarized in Table B-1.

FIELD RINSATE BLANKS

One field rinsate blank (FB-1) was collected and analyzed. The analytical results of the field rinsate blank were reviewed to evaluate the adequacy of the equipment decontamination procedures and the potential for cross-contamination from decontamination of sampling equipment. The equipment rinsate sample was collected from deionized water used to rinse soil and groundwater sampling equipment after decontamination. The rinsate blank was analyzed for volatile organic compounds using EPA Method 8260B. Chloroform (1.69 µg/l) was detected in the sample. The detected concentration of chloroform slightly exceeds the laboratory method reporting limit. Chloroform is a common constituent of cleaning solutions and is a common laboratory contaminant. Chloroform is not a constituent of concern at the site. For the reasons described above, the presence of chloroform in the field rinsate blank does not affect the use of the laboratory data for their intended purposes.

TRIP BLANK

One trip blank (TB-124) was analyzed for the project. The analytical results of the trip blank were reviewed to evaluate the potential for contamination of samples during transportation or sampling operations. The trip blank was provided by the laboratory and traveled with the samples during the course of the project. The trip blank was analyzed for volatile organic compounds by EPA Method 8260B. No volatile organic compounds were detected in the trip blank.

LABORATORY QUALITY ASSURANCE

ANALYTICAL DATA REVIEW

The laboratories maintain internal quality assurance programs as documented in the laboratory quality assurance manuals. The laboratories use a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the analytical results. The laboratories also use data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratories compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory reports. Any data quality

exceptions documented by the accredited laboratories were reviewed by GeoEngineers and are addressed in the data quality exception section of this attachment.

ANALYTICAL DATA REVIEW SUMMARY

Analytical Test	Affected Samples	Laboratory Noted QA/QC Exception or Qualifier	Comment
NWTPH-Dx	DP-8 (4-5) (soil sample)	The surrogate recovery for 1-chlorooctadecane was unavailable due to high analyte concentration or matrix interference.	Based on acceptable surrogate recoveries for the associated laboratory control sample (LCS) and the LCS duplicate, this exception is not considered significant and does not notably affect the use of the data for the purposes of this report.
WDOE EPH	DP-8 (4-5) (soil sample)	The surrogate recovery for squalane was outside accepted recovery limits due to high analyte concentration or matrix interference.	Based on acceptable surrogate recoveries for the associated laboratory control sample (LCS) and the LCS duplicate, this exception is not considered significant and does not notably affect the use of the data for the purposes of this report.
EPA 6020	All soil samples submitted for copper analysis	Copper was detected in the method blank at a concentration greater than one-half the laboratory reporting limit.	Copper was not detected at concentrations exceeding background levels in soil samples from the site.
WDOE EPH	DP-8 (4-5) (soil sample)	The matrix spike recovery for the laboratory duplicate sample was outside of the control limits due to matrix interference.	Based on the acceptable RPD for the LCS, this exception is not considered significant and does not notably affect the use of the data for the purposes of this report.
EPA 6020	All soil samples submitted for total metals analysis from explorations DP-1 through DP-12	The relative percent difference was outside of recommended limits for arsenic and lead in the laboratory duplicate.	Based on acceptable recoveries for the associated LCS and matrix spike this exception is not considered significant and does not notably affect the use of the data for the purposes of this report.
EPA 6020	All soil samples submitted for total metals analysis from explorations DP-1 through DP-12	The matrix spike recovery for barium in the matrix spike sample was outside of the control limits due to matrix interference.	Based on acceptable recovery of the matrix spike duplicate and the post spike sample, this exception is not considered significant and does not notably affect the use of the data for the purposes of this report.
EPA 6020	DP-13 (3-4)	The matrix spike recovery and/or the relative percent difference for barium, chromium, copper, and lead in the laboratory duplicate, matrix spike, and post spike samples were outside of the control limits due to matrix interference and/or a non-homogenous sample matrix.	Based on acceptable recovery of the matrix spike, this exception is not considered significant and does not notably affect the use of the data for the purposes of this report.

TABLE B-1
SUMMARY OF CHEMICAL ANALYTICAL DATA¹
VOLATILE ORGANIC COMPOUNDS IN FIELD QUALITY ASSURANCE SAMPLES
NORTH PORTLAND BIBLE COLLEGE SITE INVESTIGATION
PORTLAND, OREGON

			Applicable DEQ Risk-Based Concentrations ² (µg/L)						
	Volatile Organic Compounds (EPA Method 8260B)		Ingestion and Inhalation from Tap Water		Volitalization to Outdoor Air		Vapor Intrusion into Buildings		Groundwater in Excavation
Analyte	FB-1 (Rinsate Blank) 11/21/05	TB-124 (Trip Blank) 11/21/05	Residential	Occupational	Residential	Occupational	Residential	Occupational	Construction and Excavation Worker
1,1,1,2-Tetrachloroethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,1,1-Trichloroethane	<1.00	<1.00	3,200	13,000	-- ³	-- ³	520,000	-- ³	390,000
1,1,2,2-Tetrachloroethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,1,2-Trichloroethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,1-Dichloroethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,1-Dichloroethene	<1.00	<1.00	340	1,400	540,000	2,200,000	27,000	330,000	41,000
1,1-Dichloropropene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,2,3-Trichlorobenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,2,3-Trichloropropane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,2,4-Trichlorobenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,2,4-Trimethylbenzene	<1.00	<1.00	12	49	-- ³	-- ³	4,300	51,000	1,300
1,2-Dibromo-3-chloropropane	<5.00	<5.00	NE	NE	NE	NE	NE	NE	NE
1,2-Dibromoethane	<1.00	<1.00	0.00064	0.0046	440	2500	110	1,800	20
1,2-Dichlorobenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,2-Dichloroethane	<1.00	<1.00	0.13	0.75	1,600	9,000	210	3,600	600
1,2-Dichloropropane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,3,5-Trimethylbenzene	<1.00	<1.00	12	49	-- ³	-- ³	3,200	38,000	1,400
1,3-Dichlorobenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,3-Dichloropropane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
1,4-Dichlorobenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
2,2-Dichloropropane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
2-Butanone (Methyl Ethyl Ketone)	<10.0	<10.0	NE	NE	NE	NE	NE	NE	NE
2-Chlorotoluene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
2-Hexanone	<10.0	<10.0	NE	NE	NE	NE	NE	NE	NE
4-Chlorotoluene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
4-Methyl-2-pentanone	<5.00	<5.00	NE	NE	NE	NE	NE	NE	NE
Acetone	<25.0	<25.0	NE	NE	NE	NE	NE	NE	NE
Benzene	<1.00	<1.00	0.35	2.2	2,400	13,000	160	2,700	1,700
Bromobenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Bromochloromethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Bromodichloromethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Bromoform	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Bromomethane	<5.00	<5.00	NE	NE	NE	NE	NE	NE	NE
Carbon disulfide	<10.0	<10.0	NE	NE	NE	NE	NE	NE	NE
Carbon tetrachloride	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Chlorobenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Chloroethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Chloroform	1.69	<1.00	NE	NE	NE	NE	NE	NE	NE
Chloromethane	<5.00	<5.00	NE	NE	NE	NE	NE	NE	NE
cis-1,2-Dichloroethene	<1.00	<1.00	61	240	410,000	1,600,000	34,000	410,000	7,600
cis-1,3-Dichloropropene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Dibromochloromethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Dibromomethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Dichlorodifluoromethane	<5.00	<5.00	NE	NE	NE	NE	NE	NE	NE
Ethylbenzene	<1.00	<1.00	1,300	5,400	-- ³	-- ³	-- ³	-- ³	110,000
Hexachlorobutadiene	<4.00	<4.00	NE	NE	NE	NE	NE	NE	NE
Isopropylbenzene	<2.00	<2.00	660	2,600	-- ³	-- ³	-- ³	-- ³	-- ³
m,p-Xylene	<2.00	<2.00	NE	NE	NE	NE	NE	NE	NE
Methyl tert-butyl ether (MTBE)	<1.00	<1.00	6.4	38	96,000	550,000	17,000	280,000	31,000
Methylene chloride	<5.00	<5.00	NE	NE	NE	NE	NE	NE	NE
Naphthalene	<5.00	<5.00	6.2	25	-- ³	-- ³	29,000	-- ³	680
n-Butylbenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
n-Propylbenzene	<2.00	<2.00	240	970	-- ³	-- ³	-- ³	-- ³	-- ³
o-Xylene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
p-Isopropyltoluene	<2.00	<2.00	NE	NE	NE	NE	NE	NE	NE
sec-Butylbenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Styrene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
tert-Butylbenzene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Tetrachloroethene	<1.00	<1.00	0.091	0.63	1,500	8,600	78	1,300	240
Total Xylenes	<3.00	<3.00	210	820	-- ³	-- ³	59,000	-- ³	22,000
Toluene	<1.00	<1.00	720	2,900	-- ³	-- ³	210,000	-- ³	78,000
trans-1,2-Dichloroethene	<1.00	<1.00	120	490	500,000	2,000,000	32,000	390,000	15,000
trans-1,3-Dichloropropene	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Trichloroethene	<1.00	<1.00	0.029	0.17	110	650	6.6	110	130
Trichlorofluoromethane	<1.00	<1.00	NE	NE	NE	NE	NE	NE	NE
Vinyl chloride	<1.00	<1.00	0.024	0.49	350	6,200	16	840	1,100

Notes:
¹Chemical analyses conducted by North Creek Analytical of Portland, Oregon.
NE = not established
µg/L = micrograms per liter
"<1.0" indicates analyte not detected above the method reporting limit.
EPA = U.S. Environmental Protection Agency
Shading indicates that the detected concentration exceeds one or more potentially applicable RBCs.
Bold indicates analyte detection.



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December 19, 2005

Chris Breemer
GeoEngineers, Inc.
15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

RE: North Portland Bible College

Enclosed are the results of analyses for samples received by the laboratory on 11/22/05 12:55.
The following list is a summary of the NCA Work Orders contained in this report.
If you have any questions concerning this report, please feel free to contact me.

<u>Work</u>	<u>Project</u>	<u>ProjectNumber</u>
PSK0888	North Portland Bible College	2787.024.00

Thank You,

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Sarah Rockwell, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name:

North Portland Bible College

Project Number:

2787.024.00

Project Manager:

Chris Breemer

Report Created:

12/19/05 14:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP-1(3-4)	P5K0888-01	Soil	11/21/05 08:30	11/22/05 12:55
DP-1(7-8)	P5K0888-02	Soil	11/21/05 08:35	11/22/05 12:55
DP-2(3-4)	P5K0888-03	Soil	11/21/05 08:55	11/22/05 12:55
DP-2(6-7)	P5K0888-04	Soil	11/21/05 09:00	11/22/05 12:55
DP-3(3-4)	P5K0888-05	Soil	11/21/05 09:20	11/22/05 12:55
DP-3(7-8)	P5K0888-06	Soil	11/21/05 09:25	11/22/05 12:55
DP-4(3-4)	P5K0888-07	Soil	11/21/05 09:40	11/22/05 12:55
DP-4(12-13)	P5K0888-08	Soil	11/21/05 09:45	11/22/05 12:55
DP-5(2-3)	P5K0888-09	Soil	11/21/05 10:20	11/22/05 12:55
DP-5(11-12)	P5K0888-10	Soil	11/21/05 10:30	11/22/05 12:55
DP-6(3-4)	P5K0888-11	Soil	11/21/05 10:50	11/22/05 12:55
DP-6(11-12)	P5K0888-12	Soil	11/21/05 10:58	11/22/05 12:55
DP-7(2-3)	P5K0888-13	Soil	11/21/05 11:30	11/22/05 12:55
DP-7(11-12)	P5K0888-14	Soil	11/21/05 11:40	11/22/05 12:55
DP-8(4-5)	P5K0888-15	Soil	11/21/05 11:50	11/22/05 12:55
DP-8(13-14)	P5K0888-16	Soil	11/21/05 11:55	11/22/05 12:55
DP-9(3-4)	P5K0888-17	Soil	11/21/05 12:57	11/22/05 12:55
DP-9(6.5-7.5)	P5K0888-18	Soil	11/21/05 13:00	11/22/05 12:55
DP-10(3-4)	P5K0888-19	Soil	11/21/05 13:13	11/22/05 12:55
DP-10(7-8)	P5K0888-20	Soil	11/21/05 13:15	11/22/05 12:55
DP-11(3-4)	P5K0888-21	Soil	11/21/05 13:30	11/22/05 12:55
DP-11(13-14)	P5K0888-22	Soil	11/21/05 13:40	11/22/05 12:55
DP-12(3-4)	P5K0888-23	Soil	11/21/05 14:00	11/22/05 12:55
DP-12(13-14)	P5K0888-24	Soil	11/21/05 14:10	11/22/05 12:55
DP-13(3-4)	P5K0888-25	Soil	11/21/05 14:21	11/22/05 12:55
DP-13(13-14)	P5K0888-26	Soil	11/21/05 14:30	11/22/05 12:55
FB-1	P5K0888-27	Water	11/21/05 09:30	11/22/05 12:55
TB-124	P5K0888-28	Water	11/21/05 09:00	11/22/05 12:55



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name: North Portland Bible College

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Hydrocarbon Identification per NW-TPH Methodology

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-01	Soil	DP-1(3-4)	Sampled: 11/21/05 08:30							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	22.7	mg/kg dry	1x	5111122	11/23/05	11/23/05 16:50	
Diesel Range Hydrocarbons	"	ND	----	56.7	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	113	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 95.5%		Limits: 50 - 150 %		"		"		
P5K0888-02	Soil	DP-1(7-8)	Sampled: 11/21/05 08:35							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	14.9	mg/kg dry	1x	5111122	11/23/05	11/23/05 17:21	
Diesel Range Hydrocarbons	"	ND	----	37.2	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	74.3	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 98.0%		Limits: 50 - 150 %		"		"		
P5K0888-03	Soil	DP-2(3-4)	Sampled: 11/21/05 08:55							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	23.2	mg/kg dry	1x	5111122	11/23/05	11/23/05 17:52	
Diesel Range Hydrocarbons	"	ND	----	58.0	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	116	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 101%		Limits: 50 - 150 %		"		"		
P5K0888-04	Soil	DP-2(6-7)	Sampled: 11/21/05 09:00							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	21.2	mg/kg dry	1x	5111122	11/23/05	11/23/05 18:23	
Diesel Range Hydrocarbons	"	ND	----	52.9	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	106	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 106%		Limits: 50 - 150 %		"		"		
P5K0888-05	Soil	DP-3(3-4)	Sampled: 11/21/05 09:20							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	22.3	mg/kg dry	1x	5111122	11/23/05	11/23/05 18:54	
Diesel Range Hydrocarbons	"	ND	----	55.9	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	112	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 94.4%		Limits: 50 - 150 %		"		"		
P5K0888-06	Soil	DP-3(7-8)	Sampled: 11/21/05 09:25							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	19.6	mg/kg dry	1x	5111122	11/23/05	11/23/05 19:24	
Diesel Range Hydrocarbons	"	ND	----	49.0	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	97.9	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 102%		Limits: 50 - 150 %		"		"		

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network



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GeoEngineers, Inc.	Project Name: North Portland Bible College	Report Created:
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	12/19/05 14:13
Portland, OR 97224	Project Manager: Chris Bremer	

Hydrocarbon Identification per NW-TPH Methodology

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-07	Soil	DP-4(3-4)	Sampled: 11/21/05 09:40							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	19.8	mg/kg dry	1x	5111122	11/23/05	11/28/05 19:43	
Diesel Range Hydrocarbons	"	ND	----	49.5	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	99.0	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 92.2%		Limits: 50 - 150 %		"		"		
P5K0888-08	Soil	DP-4(12-13)	Sampled: 11/21/05 09:45							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	20.6	mg/kg dry	1x	5111122	11/23/05	11/28/05 18:08	
Diesel Range Hydrocarbons	"	ND	----	51.6	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	103	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 90.5%		Limits: 50 - 150 %		"		"		
P5K0888-09	Soil	DP-5(2-3)	Sampled: 11/21/05 10:20							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	22.5	mg/kg dry	1x	5111122	11/23/05	11/28/05 18:08	
Diesel Range Hydrocarbons	"	ND	----	56.3	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	113	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 74.3%		Limits: 50 - 150 %		"		"		
P5K0888-10	Soil	DP-5(11-12)	Sampled: 11/21/05 10:30							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	22.5	mg/kg dry	1x	5111122	11/23/05	11/28/05 19:43	
Diesel Range Hydrocarbons	"	ND	----	56.2	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	112	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 89.2%		Limits: 50 - 150 %		"		"		
P5K0888-11	Soil	DP-6(3-4)	Sampled: 11/21/05 10:50							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	22.6	mg/kg dry	1x	5111122	11/23/05	11/28/05 18:40	
Diesel Range Hydrocarbons	"	ND	----	56.4	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	113	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 87.3%		Limits: 50 - 150 %		"		"		
P5K0888-12	Soil	DP-6(11-12)	Sampled: 11/21/05 10:58							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	20.5	mg/kg dry	1x	5111122	11/23/05	11/28/05 18:40	
Diesel Range Hydrocarbons	"	ND	----	51.3	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	103	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 80.4%		Limits: 50 - 150 %		"		"		

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network



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GeoEngineers, Inc.	Project Name:	North Portland Bible College
15055 SW Sequoia Parkway, Suite 140	Project Number:	2787.024.00
Portland, OR 97224	Project Manager:	Chris Breemer
		Report Created: 12/19/05 14:13

Hydrocarbon Identification per NW-TPH Methodology
North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-13	Soil	DP-7(2-3)	Sampled: 11/21/05 11:30							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	21.4	mg/kg dry	1x	5111122	11/23/05	11/28/05 20:15	
Diesel Range Hydrocarbons	"	ND	----	53.5	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	107	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 122%		Limits: 50 - 150 %		"		"		
P5K0888-14	Soil	DP-7(11-12)	Sampled: 11/21/05 11:40							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	20.7	mg/kg dry	1x	5111122	11/23/05	11/28/05 19:11	
Diesel Range Hydrocarbons	"	ND	----	51.8	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	104	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 108%		Limits: 50 - 150 %		"		"		
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	19.2	mg/kg dry	1x	5111122	11/23/05	11/28/05 20:46	
Diesel Range Hydrocarbons	"	DET	----	48.1	"	"	"	"	"	D-09
Heavy Oil Range Hydrocarbons	"	DET	----	96.1	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 81.7%		Limits: 50 - 150 %		"		"		
P5K0888-16	Soil	DP-8(13-14)	Sampled: 11/21/05 11:55							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	18.7	mg/kg dry	1x	5111122	11/23/05	11/28/05 19:11	
Diesel Range Hydrocarbons	"	ND	----	46.6	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	93.3	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 75.6%		Limits: 50 - 150 %		"		"		
P5K0888-17	Soil	DP-9(3-4)	Sampled: 11/21/05 12:57							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	19.8	mg/kg dry	1x	5111122	11/23/05	11/28/05 20:15	
Diesel Range Hydrocarbons	"	ND	----	49.6	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	99.1	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 93.4%		Limits: 50 - 150 %		"		"		
P5K0888-18	Soil	DP-9(6.5-7.5)	Sampled: 11/21/05 13:00							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	18.4	mg/kg dry	1x	5111122	11/23/05	11/28/05 20:46	
Diesel Range Hydrocarbons	"	ND	----	46.0	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	91.9	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 114%		Limits: 50 - 150 %		"		"		

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Hydrocarbon Identification per NW-TPH Methodology

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-19	Soil	DP-10(3-4)	Sampled: 11/21/05 13:13							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	24.6	mg/kg dry	1x	5111122	11/23/05	11/28/05 17:36	
Diesel Range Hydrocarbons	"	ND	----	61.6	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	123	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 80.3%		Limits: 50 - 150 %		"		"		
P5K0888-20	Soil	DP-10(7-8)	Sampled: 11/21/05 13:15							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	22.2	mg/kg dry	1x	5111122	11/23/05	11/28/05 17:36	
Diesel Range Hydrocarbons	"	ND	----	55.4	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	111	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 89.2%		Limits: 50 - 150 %		"		"		
P5K0888-21	Soil	DP-11(3-4)	Sampled: 11/21/05 13:30							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	20.2	mg/kg dry	1x	5111124	11/23/05	11/28/05 16:31	
Diesel Range Hydrocarbons	"	ND	----	50.6	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	101	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 122%		Limits: 50 - 150 %		"		"		
P5K0888-22	Soil	DP-11(13-14)	Sampled: 11/21/05 13:40							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	18.7	mg/kg dry	1x	5111124	11/23/05	11/28/05 15:59	
Diesel Range Hydrocarbons	"	ND	----	46.6	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	93.3	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 122%		Limits: 50 - 150 %		"		"		
P5K0888-23	Soil	DP-12(3-4)	Sampled: 11/21/05 14:00							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	15.9	mg/kg dry	1x	5111124	11/23/05	11/28/05 15:59	
Diesel Range Hydrocarbons	"	ND	----	39.7	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	79.5	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 123%		Limits: 50 - 150 %		"		"		
P5K0888-24	Soil	DP-12(13-14)	Sampled: 11/21/05 14:10							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	14.0	mg/kg dry	1x	5111124	11/23/05	11/28/05 16:31	
Diesel Range Hydrocarbons	"	ND	----	35.1	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	70.2	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 119%		Limits: 50 - 150 %		"		"		

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network



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GeoEngineers, Inc. 15055 SW Sequoia Parkway, Suite 140 Portland, OR 97224	Project Name: North Portland Bible College Project Number: 2787.024.00 Project Manager: Chris Breemer
	Report Created: 12/19/05 14:13

Hydrocarbon Identification per NW-TPH Methodology

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-25	Soil	DP-13(3-4)	Sampled: 11/21/05 14:21							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	21.9	mg/kg dry	1x	5111124	11/23/05	11/28/05 17:04	
Diesel Range Hydrocarbons	"	ND	----	54.7	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	109	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 118%		Limits: 50 - 150 %		"		"		
P5K0888-26	Soil	DP-13(13-14)	Sampled: 11/21/05 14:30							
Gasoline Range Hydrocarbons	NWTPH HCID	ND	----	15.5	mg/kg dry	1x	5111124	11/23/05	11/28/05 17:04	
Diesel Range Hydrocarbons	"	ND	----	38.7	"	"	"	"	"	
Heavy Oil Range Hydrocarbons	"	ND	----	77.5	"	"	"	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery: 118%		Limits: 50 - 150 %		"		"		



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: **North Portland Bible College**
Project Number: 2787.024.00
Project Manager: Chris Breemer

Report Created:
12/19/05 14:13

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
Diesel Range Organics	NWTPH-Dx	ND	----	1410	mg/kg dry	100x	5111389	11/30/05	12/01/05 07:10	R-05
Heavy Oil Range Hydrocarbons	"	2810	----	2700	"	"	"	"	"	R-07
Surrogate(s):	1-Chlorooctadecane	Recovery: NR		Limits: 50 - 150 %	"				"	S-01



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: North Portland Bible College

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Extractable Petroleum Hydrocarbons per Washington DOE

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
C8-C10 Aromatics	WDOE EPH	ND	----	22.6	mg/kg dry	4x	5120152	12/05/05	12/07/05 14:31	R-05
C10-C12 Aromatics	"	ND	----	22.6	"	"	"	"	"	R-05
C12-C16 Aromatics	"	ND	----	22.6	"	"	"	"	"	R-05
C16-C21 Aromatics	"	61.7	----	41.4	"	"	"	"	"	
C21-C34 Aromatics	"	698	----	34.7	"	"	"	"	"	
C8-C10 Aliphatics	"	ND	----	22.6	"	"	"	"	"	R-05
C10-C12 Aliphatics	"	6.26	----	5.89	"	"	"	"	"	R-07
C12-C16 Aliphatics	"	74.3	----	22.6	"	"	"	"	"	
C16-C21 Aliphatics	"	134	----	22.6	"	"	"	"	"	
C21-C34 Aliphatics	"	1640	----	22.6	"	"	"	"	"	
Total EPH (Calc.)	WA MTCA-EPH	2610	----	41.4	"	"	[CALC]	"	"	
<i>o</i> -Terphenyl		<i>109%</i>		<i>60 - 140 %</i>	"				"	
Surrogate(s): Squalane		Recovery: 142%		Limits: 60 - 140 %	"				"	S-02



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GeoEngineers, Inc.	Project Name: North Portland Bible College	Report Created: 12/19/05 14:13
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	
Portland, OR 97224	Project Manager: Chris Breemer	

Total Metals per EPA 6000/7000 Series Methods

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-01	Soil	DP-1(3-4)	Sampled: 11/21/05 08:30							
Arsenic	EPA 6020	2.45	----	0.609	mg/kg dry	1x	5111219	11/28/05	11/30/05 02:52	
Barium	"	279	----	0.609	"	"	"	"	"	
Cadmium	"	ND	----	0.609	"	"	"	"	"	
Chromium	"	20.2	----	0.609	"	"	"	"	"	
Copper	"	29.2	----	2.44	"	"	"	"	"	B-17
Lead	"	5.56	----	0.609	"	"	"	"	"	
Selenium	"	ND	----	0.609	"	"	"	"	12/07/05 03:35	
Silver	"	ND	----	0.609	"	"	"	"	11/30/05 02:52	
P5K0888-03	Soil	DP-2(3-4)	Sampled: 11/21/05 08:55							
Arsenic	EPA 6020	1.90	----	0.579	mg/kg dry	1x	5111219	11/28/05	11/30/05 02:59	
Barium	"	224	----	0.579	"	"	"	"	"	
Cadmium	"	ND	----	0.579	"	"	"	"	"	
Chromium	"	16.9	----	0.579	"	"	"	"	"	
Copper	"	27.3	----	2.32	"	"	"	"	"	B-17
Lead	"	5.13	----	0.579	"	"	"	"	"	
Selenium	"	ND	----	0.579	"	"	"	"	12/07/05 03:51	
Silver	"	ND	----	0.579	"	"	"	"	11/30/05 02:59	
P5K0888-05	Soil	DP-3(3-4)	Sampled: 11/21/05 09:20							
Arsenic	EPA 6020	1.94	----	0.620	mg/kg dry	1x	5111219	11/28/05	11/30/05 03:07	
Barium	"	211	----	0.620	"	"	"	"	"	
Cadmium	"	ND	----	0.620	"	"	"	"	"	
Chromium	"	17.4	----	0.620	"	"	"	"	"	
Copper	"	33.6	----	2.48	"	"	"	"	"	B-17
Lead	"	4.60	----	0.620	"	"	"	"	"	
Selenium	"	ND	----	0.620	"	"	"	"	12/07/05 04:07	
Silver	"	ND	----	0.620	"	"	"	"	11/30/05 03:07	
P5K0888-07	Soil	DP-4(3-4)	Sampled: 11/21/05 09:40							
Arsenic	EPA 6020	1.40	----	0.635	mg/kg dry	1x	5111219	11/28/05	11/30/05 03:14	
Barium	"	206	----	0.635	"	"	"	"	"	
Cadmium	"	ND	----	0.635	"	"	"	"	"	
Chromium	"	13.3	----	0.635	"	"	"	"	"	
Copper	"	23.4	----	2.54	"	"	"	"	"	B-17
Lead	"	4.00	----	0.635	"	"	"	"	"	
Selenium	"	ND	----	0.635	"	"	"	"	12/07/05 04:22	
Silver	"	ND	----	0.635	"	"	"	"	11/30/05 03:14	

North Creek Analytical - Portland

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Total Metals per EPA 6000/7000 Series Methods

North Creek Analytical - Portland

Analyte	Method	Result	MDL ^A	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-09	Soil	DP-5(2-3)	Sampled: 11/21/05 10:20							
Arsenic	EPA 6020	2.43	----	0.629	mg/kg dry	1x	5111219	11/28/05	11/30/05 03:22	
Barium	"	269	----	0.629	"	"	"	"	"	
Cadmium	"	ND	----	0.629	"	"	"	"	"	
Chromium	"	21.8	----	0.629	"	"	"	"	"	
Copper	"	23.3	----	2.52	"	"	"	"	"	B-17
Lead	"	20.9	----	0.629	"	"	"	"	"	
Selenium	"	ND	----	0.629	"	"	"	"	12/07/05 04:38	
Silver	"	ND	----	0.629	"	"	"	"	11/30/05 03:22	
P5K0888-11	Soil	DP-6(3-4)	Sampled: 11/21/05 10:50							
Arsenic	EPA 6020	2.79	----	0.653	mg/kg dry	1x	5111219	11/28/05	11/30/05 03:30	
Barium	"	172	----	0.653	"	"	"	"	"	
Cadmium	"	ND	----	0.653	"	"	"	"	"	
Chromium	"	20.0	----	0.653	"	"	"	"	"	
Copper	"	17.0	----	2.61	"	"	"	"	"	B-17
Lead	"	23.5	----	0.653	"	"	"	"	"	
Selenium	"	ND	----	0.653	"	"	"	"	12/07/05 05:25	
Silver	"	ND	----	0.653	"	"	"	"	11/30/05 03:30	
P5K0888-13	Soil	DP-7(2-3)	Sampled: 11/21/05 11:30							
Arsenic	EPA 6020	2.87	----	0.596	mg/kg dry	1x	5111219	11/28/05	11/30/05 03:37	
Barium	"	230	----	0.596	"	"	"	"	"	
Cadmium	"	ND	----	2.98	"	5x	"	"	12/05/05 16:31	R-03
Chromium	"	22.6	----	0.596	"	1x	"	"	11/30/05 03:37	
Copper	"	18.7	----	2.39	"	"	"	"	"	B-17
Lead	"	19.5	----	0.596	"	"	"	"	"	
Selenium	"	ND	----	0.596	"	"	"	"	12/07/05 05:40	
Silver	"	ND	----	0.596	"	"	"	"	11/30/05 03:37	
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
Arsenic	EPA 6020	1.36	----	0.542	mg/kg dry	1x	5111219	11/28/05	11/30/05 03:45	
Barium	"	76.3	----	0.542	"	"	"	"	"	
Cadmium	"	ND	----	0.542	"	"	"	"	"	
Chromium	"	9.65	----	0.542	"	"	"	"	"	
Copper	"	16.4	----	2.17	"	"	"	"	"	B-17
Lead	"	25.4	----	0.542	"	"	"	"	"	
Selenium	"	ND	----	0.542	"	"	"	"	12/07/05 05:56	
Silver	"	ND	----	0.542	"	"	"	"	11/30/05 03:45	

North Creek Analytical - Portland

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GeoEngineers, Inc.	Project Name: North Portland Bible College	
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	Report Created: 12/19/05 14:13
Portland, OR 97224	Project Manager: Chris Breemer	

Total Metals per EPA 6000/7000 Series Methods

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-17	Soil	DP-9(3-4)	Sampled: 11/21/05 12:57							
Arsenic	EPA 6020	3.67	----	0.643	mg/kg dry	1x	5111219	11/28/05	11/30/05 03:52	
Barium	"	296	----	0.643	"	"	"	"	"	
Cadmium	"	ND	----	0.643	"	"	"	"	"	
Chromium	"	27.5	----	0.643	"	"	"	"	"	
Copper	"	22.9	----	2.57	"	"	"	"	"	B-17
Lead	"	6.47	----	0.643	"	"	"	"	"	
Selenium	"	ND	----	0.643	"	"	"	"	12/07/05 06:11	
Silver	"	ND	----	0.643	"	"	"	"	11/30/05 03:52	
P5K0888-19	Soil	DP-10(3-4)	Sampled: 11/21/05 13:13							
Arsenic	EPA 6020	4.13	----	0.661	mg/kg dry	1x	5111219	11/28/05	11/30/05 04:15	
Barium	"	262	----	0.661	"	"	"	"	"	
Cadmium	"	ND	----	0.661	"	"	"	"	"	
Chromium	"	29.0	----	0.661	"	"	"	"	"	
Copper	"	24.1	----	2.64	"	"	"	"	"	B-17
Lead	"	7.19	----	0.661	"	"	"	"	12/05/05 16:38	
Selenium	"	ND	----	0.661	"	"	"	"	12/07/05 06:27	
Silver	"	ND	----	0.661	"	"	"	"	11/30/05 04:15	
P5K0888-21	Soil	DP-11(3-4)	Sampled: 11/21/05 13:30							
Arsenic	EPA 6020	2.23	----	0.558	mg/kg dry	1x	5111219	11/28/05	11/30/05 04:22	
Barium	"	93.8	----	0.558	"	"	"	"	"	
Cadmium	"	ND	----	0.558	"	"	"	"	"	
Chromium	"	14.1	----	0.558	"	"	"	"	"	
Copper	"	16.5	----	2.23	"	"	"	"	"	B-17
Lead	"	4.10	----	0.558	"	"	"	"	12/05/05 16:46	
Selenium	"	ND	----	0.558	"	"	"	"	12/07/05 06:43	
Silver	"	ND	----	0.558	"	"	"	"	11/30/05 04:22	
P5K0888-23	Soil	DP-12(3-4)	Sampled: 11/21/05 14:00							
Arsenic	EPA 6020	2.13	----	0.554	mg/kg dry	1x	5111219	11/28/05	11/30/05 04:30	
Barium	"	86.7	----	0.554	"	"	"	"	"	
Cadmium	"	ND	----	0.554	"	"	"	"	"	
Chromium	"	15.9	----	0.554	"	"	"	"	"	
Copper	"	16.0	----	2.22	"	"	"	"	"	B-17
Lead	"	4.64	----	0.554	"	"	"	"	12/05/05 16:53	
Selenium	"	ND	----	0.554	"	"	"	"	12/07/05 06:58	
Silver	"	ND	----	0.554	"	"	"	"	11/30/05 04:30	

North Creek Analytical - Portland

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GeoEngineers, Inc.	Project Name:	North Portland Bible College	
15055 SW Sequoia Parkway, Suite 140	Project Number:	2787.024.00	<u>Report Created:</u>
Portland, OR 97224	Project Manager:	Chris Breemer	12/19/05 14:13

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-25	Soil	DP-13(3-4)	Sampled: 11/21/05 14:21							
Arsenic	EPA 6020	2.10	----	0.588	mg/kg dry	1x	5111282	11/29/05	12/06/05 11:37	
Barium	"	112	----	0.588	"	"	"	"	"	
Cadmium	"	ND	----	0.588	"	"	"	"	"	
Chromium	"	11.2	----	0.588	"	"	"	"	"	
Copper	"	20.9	----	2.35	"	"	"	"	"	B-17
Lead	"	6.67	----	0.588	"	"	"	"	"	
Selenium	"	ND	----	0.588	"	"	"	"	12/06/05 23:57	
Silver	"	ND	----	0.588	"	"	"	"	12/06/05 11:37	



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GeoEngineers, Inc. 15055 SW Sequoia Parkway, Suite 140 Portland, OR 97224	Project Name: North Portland Bible College Project Number: 2787.024.00 Project Manager: Chris Breemer
	Report Created: 12/19/05 14:13

TCLP Metals per EPA 1311/6000/7000 Series Methods

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
Cadmium	1311/6020	ND	----	0.0200	mg/l	1x	5120422	12/09/05	12/17/05 06:37	
Chromium	"	ND	----	0.0500	"	"	"	"	"	
Lead	"	0.189	-----	0.0500	"	"	"	"	"	

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network



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GeoEngineers, Inc.	Project Name:	North Portland Bible College
15055 SW Sequoia Parkway, Suite 140	Project Number:	2787.024.00
Portland, OR 97224	Project Manager:	Chris Breemer
		Report Created: 12/19/05 14:13

Total Mercury per EPA Method 7471A
North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-01	Soil	DP-1(3-4)	Sampled: 11/21/05 08:30							
Mercury	EPA 7471A	ND	----	0.0942	mg/kg dry	1x	5111225	11/28/05	11/28/05 13:48	
P5K0888-03	Soil	DP-2(3-4)	Sampled: 11/21/05 08:55							
Mercury	EPA 7471A	ND	----	0.0713	mg/kg dry	1x	5111225	11/28/05	11/28/05 13:51	
P5K0888-05	Soil	DP-3(3-4)	Sampled: 11/21/05 09:20							
Mercury	EPA 7471A	ND	----	0.0885	mg/kg dry	1x	5111225	11/28/05	11/28/05 13:53	
P5K0888-07	Soil	DP-4(3-4)	Sampled: 11/21/05 09:40							
Mercury	EPA 7471A	ND	----	0.108	mg/kg dry	1x	5111225	11/28/05	11/28/05 13:55	
P5K0888-09	Soil	DP-5(2-3)	Sampled: 11/21/05 10:20							
Mercury	EPA 7471A	ND	----	0.0656	mg/kg dry	1x	5111225	11/28/05	11/28/05 14:03	
P5K0888-11	Soil	DP-6(3-4)	Sampled: 11/21/05 10:50							
Mercury	EPA 7471A	ND	----	0.0912	mg/kg dry	1x	5111225	11/28/05	11/28/05 14:05	
P5K0888-13	Soil	DP-7(2-3)	Sampled: 11/21/05 11:30							
Mercury	EPA 7471A	ND	----	0.0735	mg/kg dry	1x	5111225	11/28/05	11/28/05 14:07	
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
Mercury	EPA 7471A	ND	----	0.0762	mg/kg dry	1x	5111225	11/28/05	11/28/05 14:09	
P5K0888-17	Soil	DP-9(3-4)	Sampled: 11/21/05 12:57							
Mercury	EPA 7471A	ND	----	0.103	mg/kg dry	1x	5111225	11/28/05	11/28/05 14:12	
P5K0888-19	Soil	DP-10(3-4)	Sampled: 11/21/05 13:13							
Mercury	EPA 7471A	ND	----	0.116	mg/kg dry	1x	5111225	11/28/05	11/28/05 14:14	
P5K0888-21	Soil	DP-11(3-4)	Sampled: 11/21/05 13:30							
Mercury	EPA 7471A	ND	----	0.0942	mg/kg dry	1x	5111225	11/28/05	11/28/05 14:16	

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Total Mercury per EPA Method 7471A

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-23	Soil	DP-12(3-4)	Sampled: 11/21/05 14:00							
Mercury	EPA 7471A	ND	---	0.0885	mg/kg dry	1x	5111225	11/28/05	11/28/05 14:18	
P5K0888-25	Soil	DP-13(3-4)	Sampled: 11/21/05 14:21							
Mercury	EPA 7471A	ND	---	0.0967	mg/kg dry	1x	5111225	11/28/05	11/28/05 14:21	

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GeoEngineers, Inc.	Project Name:	North Portland Bible College
15055 SW Sequoia Parkway, Suite 140	Project Number:	2787.024.00
Portland, OR 97224	Project Manager:	Chris Breemer
		Report Created: 12/19/05 14:13

Polychlorinated Biphenyls per EPA Method 8082

North Creek Analytical - Portland

Analyte	Method	Result	MDL ^A	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSK0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
Aroclor 1016	EPA 8082	ND	----	37.4	ug/kg dry	1x	5120147	12/05/05	12/07/05 14:46	
Aroclor 1221	"	ND	----	75.2	"	"	"	"	"	
Aroclor 1232	"	ND	----	37.4	"	"	"	"	"	
Aroclor 1242	"	ND	----	37.4	"	"	"	"	"	
Aroclor 1248	"	ND	----	37.4	"	"	"	"	"	
Aroclor 1254	"	ND	----	37.4	"	"	"	"	"	
Aroclor 1260	"	ND	----	37.4	"	"	"	"	"	

Surrogate(s): Decachlorobiphenyl

Recovery: 58.6%

Limits: 16 - 149 %

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
Acetone	EPA 8260B	ND	----	2760	ug/kg dry	1x	5120089	12/02/05	12/02/05 18:01	
Benzene	"	ND	----	22.1	"	"	"	"	"	
Bromobenzene	"	ND	----	110	"	"	"	"	"	
Bromochloromethane	"	ND	----	110	"	"	"	"	"	
Bromodichloromethane	"	ND	----	110	"	"	"	"	"	
Bromoform	"	ND	----	110	"	"	"	"	"	
Bromomethane	"	ND	----	552	"	"	"	"	"	
2-Butanone	"	ND	----	1100	"	"	"	"	"	
n-Butylbenzene	"	ND	----	552	"	"	"	"	"	
sec-Butylbenzene	"	ND	----	110	"	"	"	"	"	
tert-Butylbenzene	"	ND	----	110	"	"	"	"	"	
Carbon disulfide	"	ND	----	1100	"	"	"	"	"	
Carbon tetrachloride	"	ND	----	110	"	"	"	"	"	
Chlorobenzene	"	ND	----	110	"	"	"	"	"	
Chloroethane	"	ND	----	110	"	"	"	"	"	
Chloroform	"	ND	----	110	"	"	"	"	"	
Chloromethane	"	ND	----	552	"	"	"	"	"	
2-Chlorotoluene	"	ND	----	110	"	"	"	"	"	
4-Chlorotoluene	"	ND	----	110	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	"	ND	----	552	"	"	"	"	"	
Dibromochloromethane	"	ND	----	110	"	"	"	"	"	
1,2-Dibromoethane	"	ND	----	110	"	"	"	"	"	
Dibromomethane	"	ND	----	110	"	"	"	"	"	
1,2-Dichlorobenzene	"	ND	----	110	"	"	"	"	"	
1,3-Dichlorobenzene	"	ND	----	110	"	"	"	"	"	
1,4-Dichlorobenzene	"	ND	----	110	"	"	"	"	"	
Dichlorodifluoromethane	"	ND	----	552	"	"	"	"	"	
1,1-Dichloroethane	"	ND	----	110	"	"	"	"	"	
1,2-Dichloroethane	"	ND	----	110	"	"	"	"	"	
1,1-Dichloroethene	"	ND	----	110	"	"	"	"	"	
cis-1,2-Dichloroethene	"	ND	----	110	"	"	"	"	"	
trans-1,2-Dichloroethene	"	ND	----	110	"	"	"	"	"	
1,2-Dichloropropane	"	ND	----	110	"	"	"	"	"	
1,3-Dichloropropane	"	ND	----	110	"	"	"	"	"	
2,2-Dichloropropane	"	ND	----	110	"	"	"	"	"	
1,1-Dichloropropene	"	ND	----	110	"	"	"	"	"	
cis-1,3-Dichloropropene	"	ND	----	110	"	"	"	"	"	
trans-1,3-Dichloropropene	"	ND	----	110	"	"	"	"	"	
Ethylbenzene	"	ND	----	110	"	"	"	"	"	
Hexachlorobutadiene	"	ND	----	442	"	"	"	"	"	
2-Hexanone	"	ND	----	1100	"	"	"	"	"	
Isopropylbenzene	"	ND	----	221	"	"	"	"	"	

North Creek Analytical - Portland

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name: North Portland Bible College

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
p-Isopropyltoluene	EPA 8260B	ND	-----	221	ug/kg dry	1x	5120089	12/02/05	12/02/05 18:01	
4-Methyl-2-pentanone	"	ND	-----	552	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	-----	110	"	"	"	"	"	
Methylene chloride	"	ND	-----	552	"	"	"	"	"	
Naphthalene	"	ND	-----	221	"	"	"	"	"	
n-Propylbenzene	"	ND	-----	110	"	"	"	"	"	
Styrene	"	ND	-----	110	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	"	ND	-----	110	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	"	ND	-----	110	"	"	"	"	"	
Tetrachloroethene	"	ND	-----	110	"	"	"	"	"	
Toluene	"	ND	-----	110	"	"	"	"	"	
1,2,3-Trichlorobenzene	"	ND	-----	110	"	"	"	"	"	
1,2,4-Trichlorobenzene	"	ND	-----	110	"	"	"	"	"	
1,1,1-Trichloroethane	"	ND	-----	110	"	"	"	"	"	
1,1,2-Trichloroethane	"	ND	-----	110	"	"	"	"	"	
Trichloroethene	"	ND	-----	110	"	"	"	"	"	
Trichlorofluoromethane	"	ND	-----	110	"	"	"	"	"	
1,2,3-Trichloropropane	"	ND	-----	110	"	"	"	"	"	
1,2,4-Trimethylbenzene	"	ND	-----	110	"	"	"	"	"	
1,3,5-Trimethylbenzene	"	ND	-----	110	"	"	"	"	"	
Vinyl chloride	"	ND	-----	110	"	"	"	"	"	
o-Xylene	"	ND	-----	110	"	"	"	"	"	
m,p-Xylene	"	ND	-----	221	"	"	"	"	"	

Surrogate(s):	4-BFB	Recovery: 92.3%	Limits: 42.6 - 130 %	0.01x	"
	1,2-DCA-d4	94.1%	57.3 - 144 %	"	"
	Dibromofluoromethane	90.0%	45.5 - 130 %	"	"
	Toluene-d8	96.8%	42.1 - 144 %	"	"

P5K0888-27	Water	FB-1	Sampled: 11/21/05 09:30							
Acetone	EPA 8260B	ND	-----	25.0	ug/l	1x	5111244	11/28/05	11/28/05 22:35	
Benzene	"	ND	-----	1.00	"	"	"	"	"	
Bromobenzene	"	ND	-----	1.00	"	"	"	"	"	
Bromochloromethane	"	ND	-----	1.00	"	"	"	"	"	
Bromodichloromethane	"	ND	-----	1.00	"	"	"	"	"	
Bromoform	"	ND	-----	1.00	"	"	"	"	"	
Bromomethane	"	ND	-----	5.00	"	"	"	"	"	
2-Butanone	"	ND	-----	10.0	"	"	"	"	"	
n-Butylbenzene	"	ND	-----	5.00	"	"	"	"	"	
sec-Butylbenzene	"	ND	-----	1.00	"	"	"	"	"	
tert-Butylbenzene	"	ND	-----	1.00	"	"	"	"	"	
Carbon disulfide	"	ND	-----	10.0	"	"	"	"	"	
Carbon tetrachloride	"	ND	-----	1.00	"	"	"	"	"	

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name:

North Portland Bible College

Project Number:

2787.024.00

Project Manager:

Chris Breemer

Report Created:

12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSK0888-27	Water	FB-1	Sampled: 11/21/05 09:30							
Chlorobenzene	EPA 8260B	ND	----	1.00	ug/l	1x	5111244	11/28/05	11/28/05 22:35	
Chloroethane	"	ND	----	1.00	"	"	"	"	"	
Chloroform	"	1.69	----	1.00	"	"	"	"	"	
Chloromethane	"	ND	----	5.00	"	"	"	"	"	
2-Chlorotoluene	"	ND	----	1.00	"	"	"	"	"	
4-Chlorotoluene	"	ND	----	1.00	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	"	ND	----	5.00	"	"	"	"	"	
Dibromochloromethane	"	ND	----	1.00	"	"	"	"	"	
1,2-Dibromoethane	"	ND	----	1.00	"	"	"	"	"	
Dibromomethane	"	ND	----	1.00	"	"	"	"	"	
1,2-Dichlorobenzene	"	ND	----	1.00	"	"	"	"	"	
1,3-Dichlorobenzene	"	ND	----	1.00	"	"	"	"	"	
1,4-Dichlorobenzene	"	ND	----	1.00	"	"	"	"	"	
Dichlorodifluoromethane	"	ND	----	5.00	"	"	"	"	"	
1,1-Dichloroethane	"	ND	----	1.00	"	"	"	"	"	
1,2-Dichloroethane	"	ND	----	1.00	"	"	"	"	"	
1,1-Dichloroethene	"	ND	----	1.00	"	"	"	"	"	
cis-1,2-Dichloroethene	"	ND	----	1.00	"	"	"	"	"	
trans-1,2-Dichloroethene	"	ND	----	1.00	"	"	"	"	"	
1,2-Dichloropropane	"	ND	----	1.00	"	"	"	"	"	
1,3-Dichloropropane	"	ND	----	1.00	"	"	"	"	"	
2,2-Dichloropropane	"	ND	----	1.00	"	"	"	"	"	
1,1-Dichloropropene	"	ND	----	1.00	"	"	"	"	"	
cis-1,3-Dichloropropene	"	ND	----	1.00	"	"	"	"	"	
trans-1,3-Dichloropropene	"	ND	----	1.00	"	"	"	"	"	
Ethylbenzene	"	ND	----	1.00	"	"	"	"	"	
Hexachlorobutadiene	"	ND	----	4.00	"	"	"	"	"	
2-Hexanone	"	ND	----	10.0	"	"	"	"	"	
Isopropylbenzene	"	ND	----	2.00	"	"	"	"	"	
p-Isopropyltoluene	"	ND	----	2.00	"	"	"	"	"	
4-Methyl-2-pentanone	"	ND	----	5.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	1.00	"	"	"	"	"	
Methylene chloride	"	ND	----	5.00	"	"	"	"	"	
Naphthalene	"	ND	----	2.00	"	"	"	"	"	
n-Propylbenzene	"	ND	----	1.00	"	"	"	"	"	
Styrene	"	ND	----	1.00	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	"	ND	----	1.00	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	"	ND	----	1.00	"	"	"	"	"	
Tetrachloroethene	"	ND	----	1.00	"	"	"	"	"	
Toluene	"	ND	----	1.00	"	"	"	"	"	
1,2,3-Trichlorobenzene	"	ND	----	1.00	"	"	"	"	"	
1,2,4-Trichlorobenzene	"	ND	----	1.00	"	"	"	"	"	

North Creek Analytical - Portland

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-27	Water	FB-1	Sampled: 11/21/05 09:30							
1,1,1-Trichloroethane	EPA 8260B	ND	----	1.00	ug/l	1x	5111244	11/28/05	11/28/05 22:35	
1,1,2-Trichloroethane	"	ND	----	1.00	"	"	"	"	"	
Trichloroethene	"	ND	----	1.00	"	"	"	"	"	
Trichlorofluoromethane	"	ND	----	1.00	"	"	"	"	"	
1,2,3-Trichloropropane	"	ND	----	1.00	"	"	"	"	"	
1,2,4-Trimethylbenzene	"	ND	----	1.00	"	"	"	"	"	
1,3,5-Trimethylbenzene	"	ND	----	1.00	"	"	"	"	"	
Vinyl chloride	"	ND	----	1.00	"	"	"	"	"	
o-Xylene	"	ND	----	1.00	"	"	"	"	"	
m,p-Xylene	"	ND	----	2.00	"	"	"	"	"	
Surrogate(s):	4-BFB	Recovery: 96.5%		Limits: 75 - 120 %	"					"
	1,2-DCA-d4	112%		77 - 129 %	"					"
	Dibromofluoromethane	110%		80 - 121 %	"					"
	Toluene-d8	102%		80 - 120 %	"					"

P5K0888-28	Water	TB-124	Sampled: 11/21/05 09:00							
Acetone	EPA 8260B	ND	----	25.0	ug/l	1x	5111244	11/28/05	11/28/05 23:01	
Benzene	"	ND	----	1.00	"	"	"	"	"	
Bromobenzene	"	ND	----	1.00	"	"	"	"	"	
Bromochloromethane	"	ND	----	1.00	"	"	"	"	"	
Bromodichloromethane	"	ND	----	1.00	"	"	"	"	"	
Bromoform	"	ND	----	1.00	"	"	"	"	"	
Bromomethane	"	ND	----	5.00	"	"	"	"	"	
2-Butanone	"	ND	----	10.0	"	"	"	"	"	
n-Butylbenzene	"	ND	----	5.00	"	"	"	"	"	
sec-Butylbenzene	"	ND	----	1.00	"	"	"	"	"	
tert-Butylbenzene	"	ND	----	1.00	"	"	"	"	"	
Carbon disulfide	"	ND	----	10.0	"	"	"	"	"	
Carbon tetrachloride	"	ND	----	1.00	"	"	"	"	"	
Chlorobenzene	"	ND	----	1.00	"	"	"	"	"	
Chloroethane	"	ND	----	1.00	"	"	"	"	"	
Chloroform	"	ND	----	1.00	"	"	"	"	"	
Chloromethane	"	ND	----	5.00	"	"	"	"	"	
2-Chlorotoluene	"	ND	----	1.00	"	"	"	"	"	
4-Chlorotoluene	"	ND	----	1.00	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	"	ND	----	5.00	"	"	"	"	"	
Dibromochloromethane	"	ND	----	1.00	"	"	"	"	"	
1,2-Dibromoethane	"	ND	----	1.00	"	"	"	"	"	
Dibromomethane	"	ND	----	1.00	"	"	"	"	"	
1,2-Dichlorobenzene	"	ND	----	1.00	"	"	"	"	"	
1,3-Dichlorobenzene	"	ND	----	1.00	"	"	"	"	"	
1,4-Dichlorobenzene	"	ND	----	1.00	"	"	"	"	"	

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name: **North Portland Bible College**
 Project Number: 2787.024.00
 Project Manager: Chris Breemer

Report Created:
 12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-28	Water	TB-124	Sampled: 11/21/05 09:00							
Dichlorodifluoromethane	EPA 8260B	ND	----	5.00	ug/l	1x	5111244	11/28/05	11/28/05 23:01	
1,1-Dichloroethane	"	ND	----	1.00	"	"	"	"	"	
1,2-Dichloroethane	"	ND	----	1.00	"	"	"	"	"	
1,1-Dichloroethene	"	ND	----	1.00	"	"	"	"	"	
cis-1,2-Dichloroethene	"	ND	----	1.00	"	"	"	"	"	
trans-1,2-Dichloroethene	"	ND	----	1.00	"	"	"	"	"	
1,2-Dichloropropane	"	ND	----	1.00	"	"	"	"	"	
1,3-Dichloropropane	"	ND	----	1.00	"	"	"	"	"	
2,2-Dichloropropane	"	ND	----	1.00	"	"	"	"	"	
1,1-Dichloropropene	"	ND	----	1.00	"	"	"	"	"	
cis-1,3-Dichloropropene	"	ND	----	1.00	"	"	"	"	"	
trans-1,3-Dichloropropene	"	ND	----	1.00	"	"	"	"	"	
Ethylbenzene	"	ND	----	1.00	"	"	"	"	"	
Hexachlorobutadiene	"	ND	----	4.00	"	"	"	"	"	
2-Hexanone	"	ND	----	10.0	"	"	"	"	"	
Isopropylbenzene	"	ND	----	2.00	"	"	"	"	"	
p-Isopropyltoluene	"	ND	----	2.00	"	"	"	"	"	
4-Methyl-2-pentanone	"	ND	----	5.00	"	"	"	"	"	
Methyl tert-butyl ether	"	ND	----	1.00	"	"	"	"	"	
Methylene chloride	"	ND	----	5.00	"	"	"	"	"	
Naphthalene	"	ND	----	2.00	"	"	"	"	"	
n-Propylbenzene	"	ND	----	1.00	"	"	"	"	"	
Styrene	"	ND	----	1.00	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	"	ND	----	1.00	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	"	ND	----	1.00	"	"	"	"	"	
Tetrachloroethene	"	ND	----	1.00	"	"	"	"	"	
Toluene	"	ND	----	1.00	"	"	"	"	"	
1,2,3-Trichlorobenzene	"	ND	----	1.00	"	"	"	"	"	
1,2,4-Trichlorobenzene	"	ND	----	1.00	"	"	"	"	"	
1,1,1-Trichloroethane	"	ND	----	1.00	"	"	"	"	"	
1,1,2-Trichloroethane	"	ND	----	1.00	"	"	"	"	"	
Trichloroethene	"	ND	----	1.00	"	"	"	"	"	
Trichlorofluoromethane	"	ND	----	1.00	"	"	"	"	"	
1,2,3-Trichloropropane	"	ND	----	1.00	"	"	"	"	"	
1,2,4-Trimethylbenzene	"	ND	----	1.00	"	"	"	"	"	
1,3,5-Trimethylbenzene	"	ND	----	1.00	"	"	"	"	"	
Vinyl chloride	"	ND	----	1.00	"	"	"	"	"	
o-Xylene	"	ND	----	1.00	"	"	"	"	"	
m,p-Xylene	"	ND	----	2.00	"	"	"	"	"	
Surrogate(s): 4-BFB		Recovery: 93.0%		Limits: 75 - 120 %	"					"
1,2-DCA-d4		109%		77 - 129 %	"					"
Dibromofluoromethane		106%		80 - 121 %	"					"

North Creek Analytical - Portland

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: North Portland Bible College

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-28	Water	TB-124	Sampled: 11/21/05 09:00							
	Toluene-d8	104%			80 - 120 %	1x			11/28/05 23:01	

North Creek Analytical - Portland

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Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
PSK0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							R-05
Acenaphthene	EPA 8270m	ND	----	188	ug/kg dry	5x	5120141	12/05/05	12/07/05 17:57	
Acenaphthylene	"	ND	----	188	"	"	"	"	"	
Anthracene	"	ND	----	188	"	"	"	"	"	
Benzo (a) anthracene	"	ND	----	188	"	"	"	"	"	
Benzo (a) pyrene	"	ND	----	188	"	"	"	"	"	
Benzo (b) fluoranthene	"	ND	----	188	"	"	"	"	"	
Benzo (ghi) perylene	"	ND	----	188	"	"	"	"	"	
Benzo (k) fluoranthene	"	ND	----	188	"	"	"	"	"	
Chrysene	"	ND	----	188	"	"	"	"	"	
Dibenzo (a,h) anthracene	"	ND	----	188	"	"	"	"	"	
Fluoranthene	"	ND	----	188	"	"	"	"	"	
Fluorene	"	ND	----	188	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	"	ND	----	188	"	"	"	"	"	
Naphthalene	"	ND	----	188	"	"	"	"	"	
Phenanthrene	"	ND	----	188	"	"	"	"	"	
Pyrene	"	ND	----	188	"	"	"	"	"	
Surrogate(s):	Fluorene-d10	Recovery: 106%		Limits: 32 - 134 %	"				"	
	Pyrene-d10	127%		41 - 152 %	"				"	
	Benzo (a) pyrene-d12	128%		36 - 145 %	"				"	

North Creek Analytical - Portland

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name:

North Portland Bible College

Project Number:

2787.024.00

Project Manager:

Chris Breemer

Report Created:

12/19/05 14:13

TCLP Extraction Only

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
Extraction	EPA 1311	ND	-----	1.00	N/A	1x	5120409	12/08/05	12/09/05 16:04	

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

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Page 24 of 50



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Percent Dry Weight (Solids) per Standard Methods

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-01	Soil	DP-1(3-4)	Sampled: 11/21/05 08:30							
% Solids	NCA SOP	82.9	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-02	Soil	DP-1(7-8)	Sampled: 11/21/05 08:35							
% Solids	NCA SOP	89.7	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-03	Soil	DP-2(3-4)	Sampled: 11/21/05 08:55							
% Solids	NCA SOP	85.5	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-04	Soil	DP-2(6-7)	Sampled: 11/21/05 09:00							
% Solids	NCA SOP	89.0	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-05	Soil	DP-3(3-4)	Sampled: 11/21/05 09:20							
% Solids	NCA SOP	83.1	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-06	Soil	DP-3(7-8)	Sampled: 11/21/05 09:25							
% Solids	NCA SOP	85.6	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-07	Soil	DP-4(3-4)	Sampled: 11/21/05 09:40							
% Solids	NCA SOP	79.5	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-08	Soil	DP-4(12-13)	Sampled: 11/21/05 09:45							
% Solids	NCA SOP	86.8	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-09	Soil	DP-5(2-3)	Sampled: 11/21/05 10:20							
% Solids	NCA SOP	82.8	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-10	Soil	DP-5(11-12)	Sampled: 11/21/05 10:30							
% Solids	NCA SOP	77.8	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-11	Soil	DP-6(3-4)	Sampled: 11/21/05 10:50							
% Solids	NCA SOP	80.6	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	

North Creek Analytical - Portland

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Percent Dry Weight (Solids) per Standard Methods

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-12	Soil	DP-6(11-12)	Sampled: 11/21/05 10:58							
% Solids	NCA SOP	88.2	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-13	Soil	DP-7(2-3)	Sampled: 11/21/05 11:30							
% Solids	NCA SOP	83.0	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-14	Soil	DP-7(11-12)	Sampled: 11/21/05 11:40							
% Solids	NCA SOP	88.6	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-15	Soil	DP-8(4-5)	Sampled: 11/21/05 11:50							
% Solids	NCA SOP	88.7	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-16	Soil	DP-8(13-14)	Sampled: 11/21/05 11:55							
% Solids	NCA SOP	90.8	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-17	Soil	DP-9(3-4)	Sampled: 11/21/05 12:57							
% Solids	NCA SOP	78.5	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-18	Soil	DP-9(6.5-7.5)	Sampled: 11/21/05 13:00							
% Solids	NCA SOP	85.3	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-19	Soil	DP-10(3-4)	Sampled: 11/21/05 13:13							
% Solids	NCA SOP	79.6	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-20	Soil	DP-10(7-8)	Sampled: 11/21/05 13:15							
% Solids	NCA SOP	86.8	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-21	Soil	DP-11(3-4)	Sampled: 11/21/05 13:30							
% Solids	NCA SOP	91.5	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-22	Soil	DP-11(13-14)	Sampled: 11/21/05 13:40							
% Solids	NCA SOP	90.7	----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name:

North Portland Bible College

Project Number:

2787.024.00

Project Manager:

Chris Breemer

Report Created:

12/19/05 14:13

Percent Dry Weight (Solids) per Standard Methods

North Creek Analytical - Portland

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P5K0888-23	Soil	DP-12(3-4)	Sampled: 11/21/05 14:00							
% Solids	NCA SOP	91.1	-----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-24	Soil	DP-12(13-14)	Sampled: 11/21/05 14:10							
% Solids	NCA SOP	92.2	-----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-25	Soil	DP-13(3-4)	Sampled: 11/21/05 14:21							
% Solids	NCA SOP	83.4	-----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	
P5K0888-26	Soil	DP-13(13-14)	Sampled: 11/21/05 14:30							
% Solids	NCA SOP	86.7	-----	1.00	% by Weight	1x	5111144	11/23/05	11/28/05 12:01	

North Creek Analytical - Portland

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Page 27 of 50



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GeoEngineers, Inc.	Project Name:	North Portland Bible College
15055 SW Sequoia Parkway, Suite 140	Project Number:	2787.024.00
Portland, OR 97224	Project Manager:	Chris Breemer
		Report Created: 12/19/05 14:13

Hydrocarbon Identification per NW-TPH Methodology - Laboratory Quality Control Results
North Creek Analytical - Portland

QC Batch: 5111122	Soil Preparation Method: EPA 3550 Fuels
--------------------------	--

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

Blank (5111122-BLK1)

Extracted: 11/23/05 12:00

Gasoline Range Hydrocarbons	NWTPH HCID	ND	---	20.0	mg/kg	1x	--	--	--	--	--	--	11/23/05 15:17	
Diesel Range Hydrocarbons	"	ND	---	50.0	"	"	--	--	--	--	--	--	"	
Heavy Oil Range Hydrocarbons	"	ND	---	100	"	"	--	--	--	--	--	--	"	

Surrogate(s): 1-Chlorooctadecane Recovery: 96.4% Limits: 50-150% " 11/23/05 15:17

Duplicate (5111122-DUP1)

QC Source: PSK0888-01

Extracted: 11/23/05 12:00

Gasoline Range Hydrocarbons	NWTPH HCID	ND	---	23.0	mg/kg dry	1x	ND	--	--	--	NR (50)	11/23/05 15:48	
Diesel Range Hydrocarbons	"	ND	---	57.6	"	"	ND	--	--	--	NR "	"	
Heavy Oil Range Hydrocarbons	"	ND	---	115	"	"	ND	--	--	--	NR "	"	

Surrogate(s): 1-Chlorooctadecane Recovery: 105% Limits: 50-150% " 11/23/05 15:48

Duplicate (5111122-DUP2)

QC Source: PSK0888-02

Extracted: 11/23/05 12:00

Gasoline Range Hydrocarbons	NWTPH HCID	ND	---	19.5	mg/kg dry	1x	ND	--	--	--	NR (50)	11/23/05 16:19	
Diesel Range Hydrocarbons	"	ND	---	48.7	"	"	ND	--	--	--	NR "	"	
Heavy Oil Range Hydrocarbons	"	ND	---	97.4	"	"	ND	--	--	--	NR "	"	

Surrogate(s): 1-Chlorooctadecane Recovery: 124% Limits: 50-150% " 11/23/05 16:19

QC Batch: 5111124	Soil Preparation Method: EPA 3550 Fuels
--------------------------	--

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

Blank (5111124-BLK1)

Extracted: 11/23/05 11:15

Gasoline Range Hydrocarbons	NWTPH HCID	ND	---	20.0	mg/kg	1x	--	--	--	--	--	--	11/28/05 15:27	
Diesel Range Hydrocarbons	"	ND	---	50.0	"	"	--	--	--	--	--	--	"	
Heavy Oil Range Hydrocarbons	"	ND	---	100	"	"	--	--	--	--	--	--	"	

Surrogate(s): 1-Chlorooctadecane Recovery: 116% Limits: 50-150% " 11/28/05 15:27

Duplicate (5111124-DUP1)

QC Source: PSK0888-21

Extracted: 11/23/05 11:15

Gasoline Range Hydrocarbons	NWTPH HCID	ND	---	19.0	mg/kg dry	1x	ND	--	--	--	NR (50)	11/28/05 15:27	
Diesel Range Hydrocarbons	"	ND	---	47.5	"	"	ND	--	--	--	NR "	"	
Heavy Oil Range Hydrocarbons	"	ND	---	95.0	"	"	ND	--	--	--	NR "	"	

Surrogate(s): 1-Chlorooctadecane Recovery: 119% Limits: 50-150% " 11/28/05 15:27

Duplicate (5111124-DUP2)

QC Source: PSK0959-01

Extracted: 11/23/05 12:30

Gasoline Range Hydrocarbons	NWTPH HCID	ND	---	26.1	mg/kg dry	1x	ND	--	--	--	NR (50)	11/28/05 14:55	
Diesel Range Hydrocarbons	"	ND	---	65.3	"	"	ND	--	--	--	NR "	"	
Heavy Oil Range Hydrocarbons	"	ND	---	131	"	"	ND	--	--	--	NR "	"	

Surrogate(s): 1-Chlorooctadecane Recovery: 77.2% Limits: 50-150% " 11/28/05 14:55

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 Environmental Laboratory Network



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GeoEngineers, Inc.	Project Name: North Portland Bible College	Report Created:
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	12/19/05 14:13
Portland, OR 97224	Project Manager: Chris Breemer	

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method - Laboratory Quality Control Results
North Creek Analytical - Portland

QC Batch: 5111389 Soil Preparation Method: EPA 3550 Fuels

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5111389-BLK1)														
Extracted: 11/30/05 18:15														
Diesel Range Organics	NWTPH-Dx	ND	---	12.5	mg/kg	1x	--	--	--	--	--	--	12/01/05 07:24	
Heavy Oil Range Hydrocarbons	"	ND	---	25.0	"	"	--	--	--	--	--	--	"	
Surrogate(s): 1-Chlorooctadecane		Recovery:	102%	Limits: 50-150%		"		12/01/05 07:24						
LCS (5111389-BS1)														
Extracted: 11/30/05 18:15														
Diesel Range Organics	NWTPH-Dx	124	---	12.5	mg/kg	1x	--	125	99.2%	(50-150)	--	--	12/01/05 08:03	
Heavy Oil Range Hydrocarbons	"	59.7	---	25.0	"	"	--	75.0	79.6%	"	--	--	"	
Surrogate(s): 1-Chlorooctadecane		Recovery:	103%	Limits: 50-150%		"		12/01/05 08:03						
Duplicate (5111389-DUP1)														
QC Source: PSK1090-01														
Extracted: 11/30/05 18:15														
Diesel Range Organics	NWTPH-Dx	309	---	17.2	mg/kg dry	1x	383	--	--	--	21.4%	(50)	12/01/05 07:44	
Heavy Oil Range Hydrocarbons	"	ND	---	34.3	"	"	ND	--	--	--	NR	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery:	90.6%	Limits: 50-150%		"		12/01/05 07:44						
Duplicate (5111389-DUP2)														
QC Source: PSK1092-01														
Extracted: 11/30/05 18:15														
Diesel Range Organics	NWTPH-Dx	ND	---	14.4	mg/kg dry	1x	ND	--	--	--	NR	(50)	12/01/05 08:40	
Heavy Oil Range Hydrocarbons	"	ND	---	28.7	"	"	ND	--	--	--	NR	"	"	
Surrogate(s): 1-Chlorooctadecane		Recovery:	90.3%	Limits: 50-150%		"		12/01/05 08:40						



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Extractable Petroleum Hydrocarbons per Washington DOE - Laboratory Quality Control Results**North Creek Analytical - Portland**

QC Batch: 5120152

Soil Preparation Method: EPA 3550 Fuels

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

Blank (5120152-BLK1)

Extracted: 12/05/05 15:00

C8-C10 Aromatics	WDOE EPH	ND	---	5.00	mg/kg	1x	--	--	--	--	--	--	12/06/05 19:50	
C10-C12 Aromatics	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
C12-C16 Aromatics	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
C16-C21 Aromatics	"	ND	---	9.15	"	"	--	--	--	--	--	--	"	
C21-C34 Aromatics	"	ND	---	7.67	"	"	--	--	--	--	--	--	"	
C8-C10 Aliphatics	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
C10-C12 Aliphatics	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
C12-C16 Aliphatics	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
C16-C21 Aliphatics	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
C21-C34 Aliphatics	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
Total EPH (Calc.)	"	ND	---	9.15	"	"	--	--	--	--	--	--	"	

Surrogate(s): Squalane
o-Terphenyl

Recovery: 119%
95.2%

Limits: 60-140%
60-140%

12/06/05 19:50
"

LCS (5120152-BS1)

Extracted: 12/05/05 15:00

C8-C10 Aromatics	WDOE EPH	4.28	---	4.28	mg/kg	1x	--	4.00	107%	(50-150)	--	--	12/06/05 19:18	
C10-C12 Aromatics	"	3.23	---	3.23	"	"	--	"	80.8%	(70-130)	--	--	"	
C12-C16 Aromatics	"	10.1	---	5.00	"	"	--	12.0	84.2%	"	--	--	"	
C16-C21 Aromatics	"	17.9	---	9.15	"	"	--	20.0	89.5%	"	--	--	"	
C21-C34 Aromatics	"	28.1	---	7.67	"	"	--	28.0	100%	"	--	--	"	
C8-C10 Aliphatics	"	9.05	---	5.00	"	"	--	12.0	75.4%	(50-150)	--	--	"	
C10-C12 Aliphatics	"	8.38	---	5.00	"	"	--	7.96	105%	(70-130)	--	--	"	
C12-C16 Aliphatics	"	17.0	---	5.00	"	"	--	15.8	108%	"	--	--	"	
C16-C21 Aliphatics	"	30.4	---	5.00	"	"	--	27.9	109%	"	--	--	"	
C21-C34 Aliphatics	"	58.7	---	5.00	"	"	--	51.9	113%	"	--	--	"	

Surrogate(s): Squalane
o-Terphenyl

Recovery: 118%
99.6%

Limits: 60-140%
60-140%

12/06/05 19:18
"

Duplicate (5120152-DUP1)

QC Source: P5K0858-15

Extracted: 12/05/05 15:00

C8-C10 Aromatics	WDOE EPH	ND	---	22.7	mg/kg dry	4x	ND	--	--	--	NR	(50)	12/07/05 13:57	R-05
C10-C12 Aromatics	"	ND	---	22.7	"	"	ND	--	--	--	NR	"	"	R-05
C12-C16 Aromatics	"	ND	---	22.7	"	"	ND	--	--	--	NR	"	"	R-05
C16-C21 Aromatics	"	55.0	---	41.6	"	"	61.7	--	--	--	11.5%	"	"	
C21-C34 Aromatics	"	697	---	34.8	"	"	698	--	--	--	0.143%	"	"	
C8-C10 Aliphatics	"	ND	---	22.7	"	"	ND	--	--	--	NR	"	"	R-05
C10-C12 Aliphatics	"	ND	---	22.7	"	"	ND	--	--	--	NR	"	"	Q-14
C12-C16 Aliphatics	"	47.4	---	22.7	"	"	74.3	--	--	--	44.2%	"	"	
C16-C21 Aliphatics	"	114	---	22.7	"	"	134	--	--	--	16.1%	"	"	
C21-C34 Aliphatics	"	1580	---	22.7	"	"	1640	--	--	--	3.73%	"	"	
Total EPH (Calc.)	"	2500	---	41.6	"	"	2610	--	--	--	4.31%	"	"	

Surrogate(s): o-Terphenyl
Squalane

Recovery: 104%
138%

Limits: 60-140%
60-140%

12/07/05 13:57
"

North Creek Analytical - Portland

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Environmental Laboratory Network

Sarah Rockwell, Project Manager



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GeoEngineers, Inc. 15055 SW Sequoia Parkway, Suite 140 Portland, OR 97224	Project Name:	North Portland Bible College	
	Project Number:	2787.024.00	<u>Report Created:</u>
	Project Manager:	Chris Breemer	12/19/05 14:13

Extractable Petroleum Hydrocarbons per Washington DOE - Laboratory Quality Control Results North Creek Analytical - Portland

QC Batch: 5120152	Soil Preparation Method: EPA 3550 Fuels
-------------------	---

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------



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GeoEngineers, Inc.	Project Name: North Portland Bible College	
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	Report Created: 12/19/05 14:13
Portland, OR 97224	Project Manager: Chris Breemer	

Total Metals per EPA 6000/7000 Series Methods - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5111219	Soil Preparation Method: EPA 3050
-------------------	-----------------------------------

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

Blank (5111219-BLK1)

Extracted: 11/28/05 10:22

Arsenic	EPA 6020	ND	---	0.510	mg/kg	1x	--	--	--	--	--	--	11/29/05 10:59	
Barium	"	ND	---	0.510	"	"	--	--	--	--	--	--	"	
Cadmium	"	ND	---	0.510	"	"	--	--	--	--	--	--	"	
Chromium	"	ND	---	0.510	"	"	--	--	--	--	--	--	"	
Copper	"	ND	---	2.04	"	"	--	--	--	--	--	--	"	B
Lead	"	ND	---	0.510	"	"	--	--	--	--	--	--	"	
Selenium	"	ND	---	0.510	"	"	--	--	--	--	--	--	"	
Silver	"	ND	---	0.510	"	"	--	--	--	--	--	--	"	

Blank (5111219-BLK2)

Extracted: 11/28/05 10:22

Selenium	EPA 6020	ND	---	0.510	mg/kg	1x	--	--	--	--	--	--	12/07/05 02:17	
----------	----------	----	-----	-------	-------	----	----	----	----	----	----	----	----------------	--

LCS (5111219-BS1)

Extracted: 11/28/05 10:22

Arsenic	EPA 6020	9.59	---	0.495	mg/kg	1x	--	9.90	96.9%	(80-120)	--	--	11/29/05 11:06	
Barium	"	9.70	---	0.495	"	"	--	"	98.0%	"	--	--	"	
Cadmium	"	9.39	---	0.495	"	"	--	"	94.8%	"	--	--	"	
Chromium	"	9.28	---	0.495	"	"	--	"	93.7%	"	--	--	"	
Copper	"	9.87	---	1.98	"	"	--	"	99.7%	"	--	--	"	
Lead	"	8.90	---	0.495	"	"	--	"	89.9%	"	--	--	"	
Selenium	"	5.14	---	0.495	"	"	--	4.95	104%	"	--	--	"	
Silver	"	4.96	---	0.495	"	"	--	"	100%	"	--	--	"	

LCS (5111219-BS2)

Extracted: 11/28/05 10:22

Selenium	EPA 6020	4.50	---	0.495	mg/kg	1x	--	4.95	90.9%	(80-120)	--	--	12/07/05 02:33	
----------	----------	------	-----	-------	-------	----	----	------	-------	----------	----	----	----------------	--

Duplicate (5111219-DUP1)

QC Source: P5K0665-08

Extracted: 11/28/05 10:22

Arsenic	EPA 6020	84.5	---	0.628	mg/kg dry	1x	7.21	--	--	--	169%	(40)	11/29/05 11:22	Q-14
Barium	"	98.7	---	0.628	"	"	96.6	--	--	--	2.15%	"	"	
Cadmium	"	ND	---	0.628	"	"	ND	--	--	--	NR	"	"	
Chromium	"	15.0	---	0.628	"	"	17.3	--	--	--	14.2%	"	"	
Copper	"	28.2	---	2.51	"	"	28.2	--	--	--	0.00%	"	"	
Lead	"	6.45	---	0.628	"	"	3.55	--	--	--	58.0%	"	"	Q-14
Selenium	"	ND	---	0.628	"	"	ND	--	--	--	NR	"	"	
Silver	"	ND	---	0.628	"	"	ND	--	--	--	NR	"	"	

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Sarah Rockwell, Project Manager

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GeoEngineers, Inc.	Project Name: North Portland Bible College	
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	Report Created: 12/19/05 14:13
Portland, OR 97224	Project Manager: Chris Breemer	

Total Metals per EPA 6000/7000 Series Methods - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5111219	Soil Preparation Method: EPA 3050
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Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes	
Matrix Spike (5111219-MS1)		QC Source: P5K0665-08						Extracted: 11/28/05 10:22							
Arsenic	EPA 6020	20.4	---	0.628	mg/kg dry	1x	7.21	12.6	105%	(75-125)	--	--	11/29/05 11:37	Q-02	
Barium	"	116	---	0.628	"	"	96.6	"	154%	"	--	--	"		
Cadmium	"	12.3	---	0.628	"	"	ND	"	97.6%	"	--	--	"		
Chromium	"	31.4	---	0.628	"	"	17.3	"	112%	"	--	--	"		
Copper	"	38.6	---	2.51	"	"	28.2	"	82.5%	"	--	--	"		
Lead	"	14.7	---	0.628	"	"	3.55	"	88.5%	"	--	--	"		
Selenium	"	6.14	---	0.628	"	"	ND	6.28	97.8%	"	--	--	"		
Silver	"	6.63	---	0.628	"	"	ND	"	106%	"	--	--	"		
Matrix Spike (5111219-MS2)		QC Source: P5K0690-01						Extracted: 11/28/05 10:22							
Arsenic	EPA 6020	195	---	9.90	mg/kg dry	1x	ND	198	98.5%	(75-125)	--	--	11/29/05 12:00		
Barium	"	526	---	9.90	"	"	322	"	103%	"	--	--	"		
Cadmium	"	181	---	9.90	"	"	ND	"	91.4%	"	--	--	"		
Chromium	"	206	---	9.90	"	"	14.3	"	96.8%	"	--	--	"		
Copper	"	553	---	39.6	"	"	354	"	101%	"	--	--	"		
Lead	"	197	---	9.90	"	"	21.9	"	88.4%	"	--	--	"		
Selenium	"	104	---	9.90	"	"	ND	99.0	105%	"	--	--	"		
Silver	"	99.1	---	9.90	"	"	2.54	"	97.5%	"	--	--	"		
Post Spike (5111219-PS1)		QC Source: P5K0665-08						Extracted: 11/28/05 10:22							
Arsenic	EPA 6020	0.309	---		ug/ml	1x	0.109	0.200	100%	(75-125)	--	--	11/29/05 11:44		
Barium	"	1.62	---		"	"	1.46	"	80.0%	"	--	--	"		
Cadmium	"	0.210	---		"	"	-0.00177	"	106%	"	--	--	"		
Chromium	"	0.430	---		"	"	0.263	"	83.5%	"	--	--	"		
Copper	"	0.607	---		"	"	0.427	"	90.0%	"	--	--	"		
Lead	"	0.248	---		"	"	0.0538	"	97.1%	"	--	--	"		
Selenium	"	0.110	---		"	"	0.000920	0.100	109%	"	--	--	"		
Silver	"	0.112	---		"	"	0.000370	"	112%	"	--	--	"		



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Total Metals per EPA 6000/7000 Series Methods - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5111282

Soil Preparation Method: EPA 3050

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes	
Blank (5111282-BLK1)														Extracted: 11/29/05 10:44	
Arsenic	EPA 6020	ND	---	0.505	mg/kg	1x	--	--	--	--	--	--	12/06/05 11:06		
Barium	"	ND	---	0.505	"	"	--	--	--	--	--	--	"		
Cadmium	"	ND	---	0.505	"	"	--	--	--	--	--	--	"		
Chromium	"	ND	---	0.505	"	"	--	--	--	--	--	--	"		
Copper	"	ND	---	2.02	"	"	--	--	--	--	--	--	"		
Lead	"	ND	---	0.505	"	"	--	--	--	--	--	--	"		
Selenium	"	ND	---	0.505	"	"	--	--	--	--	--	--	12/06/05 23:25		
Silver	"	ND	---	0.505	"	"	--	--	--	--	--	--	12/06/05 11:06		
LCS (5111282-BS1)														Extracted: 11/29/05 10:44	
Arsenic	EPA 6020	11.4	---	0.526	mg/kg	1x	--	10.5	109%	(80-120)	--	--	12/06/05 11:14		
Barium	"	10.7	---	0.526	"	"	--	"	102%	"	--	--	"		
Cadmium	"	10.3	---	0.526	"	"	--	"	98.1%	"	--	--	"		
Chromium	"	10.6	---	0.526	"	"	--	"	101%	"	--	--	"		
Copper	"	11.2	---	2.11	"	"	--	"	107%	"	--	--	"		
Lead	"	10.7	---	0.526	"	"	--	"	102%	"	--	--	"		
Selenium	"	5.41	---	0.526	"	"	--	5.26	103%	"	--	--	12/06/05 23:41		
Silver	"	5.10	---	0.526	"	"	--	"	97.0%	"	--	--	12/06/05 11:14		
Duplicate (5111282-DUP1)														QC Source: PSK0888-25	Extracted: 11/29/05 10:44
Arsenic	EPA 6020	2.78	---	0.625	mg/kg dry	1x	2.10	--	--	--	27.9%	(40)	12/06/05 11:45		
Barium	"	191	---	0.625	"	"	112	--	--	--	52.1%	"	"	Q-1	
Cadmium	"	ND	---	0.625	"	"	ND	--	--	--	NR	"	"		
Chromium	"	15.7	---	0.625	"	"	11.2	--	--	--	33.5%	"	"		
Copper	"	31.9	---	2.50	"	"	20.9	--	--	--	41.7%	"	"	Q-1	
Lead	"	37.3	---	0.625	"	"	6.67	--	--	--	139%	"	"	Q-1	
Selenium	"	ND	---	0.625	"	"	ND	--	--	--	NR	"	12/07/05 00:12		
Silver	"	ND	---	0.625	"	"	ND	--	--	--	NR	"	12/06/05 11:45		
Matrix Spike (5111282-MS1)														QC Source: PSK0888-25	Extracted: 11/29/05 10:44
Arsenic	EPA 6020	16.5	---	0.612	mg/kg dry	1x	2.10	12.2	118%	(75-125)	--	--	12/06/05 12:00		
Barium	"	141	---	0.612	"	"	112	"	238%	"	--	--	"	Q-1	
Cadmium	"	12.2	---	0.612	"	"	ND	"	100%	"	--	--	"		
Chromium	"	26.9	---	0.612	"	"	11.2	"	129%	"	--	--	"	Q-0	
Copper	"	47.3	---	2.45	"	"	20.9	"	216%	"	--	--	"	Q-1	
Lead	"	20.6	---	0.612	"	"	6.67	"	114%	"	--	--	"		
Selenium	"	5.40	---	0.612	"	"	ND	6.12	88.2%	"	--	--	12/07/05 00:28		
Silver	"	6.63	---	0.612	"	"	ND	"	108%	"	--	--	12/06/05 12:00		

North Creek Analytical - Portland

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GeoEngineers, Inc. 15055 SW Sequoia Parkway, Suite 140 Portland, OR 97224	Project Name:	North Portland Bible College	
	Project Number:	2787.024.00	<u>Report Created:</u>
	Project Manager:	Chris Breemer	12/19/05 14:13

Total Metals per EPA 6000/7000 Series Methods - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5111282	Soil Preparation Method: EPA 3050
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Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Post Spike (5111282-PS1)		QC Source: P5K0888-25					Extracted: 11/29/05 10:44							
Arsenic	EPA 6020	0.244	---		ug/ml	1x	0.0324	0.185	114%	(75-125)	--	--	12/06/05 12:07	
Barium	"	2.36	---		"	"	1.73	"	>300%	"	--	--	"	Q-14
Cadmium	"	0.177	---		"	"	-0.00635	"	99.1%	"	--	--	"	
Chromium	"	0.406	---		"	"	0.172	"	126%	"	--	--	"	Q-02
Copper	"	0.678	---		"	"	0.323	"	192%	"	--	--	"	Q-14
Lead	"	0.309	---		"	"	0.103	"	111%	"	--	--	"	
Selenium	"	0.0849	---		"	"	0.000726	0.0926	90.9%	"	--	--	12/07/05 00:59	
Silver	"	0.106	---		"	"	0.000427	"	114%	"	--	--	12/06/05 12:07	



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GeoEngineers, Inc.	Project Name: North Portland Bible College	
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	Report Created: 12/19/05 14:13
Portland, OR 97224	Project Manager: Chris Breemer	

TCLP Metals per EPA 1311/6000/7000 Series Methods - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5120422	Soil Preparation Method: EPA 1311/3005
-------------------	--

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5120422-BLK1) Extracted: 12/09/05 16:13														
Cadmium	1311/6020	ND	---	0.0200	mg/l	1x	--	--	--	--	--	--	12/16/05 03:41	
Chromium	"	ND	---	0.0500	"	"	--	--	--	--	--	--	"	
Lead	"	ND	---	0.0500	"	"	--	--	--	--	--	--	"	
LCS (5120422-BS1) Extracted: 12/09/05 16:13														
Cadmium	1311/6020	0.465	---	0.0222	mg/l	1x	--	0.444	105%	(75-125)	--	--	12/16/05 03:55	
Chromium	"	1.17	---	0.0556	"	"	--	1.11	105%	"	--	--	"	
Lead	"	2.24	---	0.0556	"	"	--	2.22	101%	"	--	--	"	
Matrix Spike (5120422-MS1) QC Source: PSK0487-21 Extracted: 12/09/05 16:13														
Cadmium	1311/6020	0.424	---	0.0222	mg/l	1x	ND	0.444	95.5%	(50-150)	--	--	12/16/05 11:25	
Chromium	"	1.01	---	0.0556	"	"	0.00896	1.11	90.2%	"	--	--	"	
Lead	"	2.05	---	0.0556	"	"	0.00151	2.22	92.3%	"	--	--	"	
Matrix Spike (5120422-MS2) QC Source: PSK0487-49 Extracted: 12/09/05 16:13														
Cadmium	1311/6020	0.457	---	0.111	mg/l	5x	0.000926	0.444	103%	(50-150)	--	--	12/16/05 11:50	
Chromium	"	2.67	---	0.278	"	"	1.52	1.11	104%	"	--	--	"	
Lead	"	2.19	---	0.278	"	"	0.00750	2.22	98.3%	"	--	--	"	



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GeoEngineers, Inc.	Project Name: North Portland Bible College	
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	Report Created: 12/19/05 14:13
Portland, OR 97224	Project Manager: Chris Breemer	

Total Mercury per EPA Method 7471A - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5111225	Soil Preparation Method: EPA 7471A
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Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5111225-BLK1)										Extracted: 11/28/05 11:01				
Mercury	EPA 7471A	ND	---	0.100	mg/kg	1x	--	--	--	--	--	--	11/28/05 13:33	
LCS (5111225-BS1)										Extracted: 11/28/05 11:01				
Mercury	EPA 7471A	1.00	---	0.100	mg/kg	1x	--	1.00	100%	(80-120)	--	--	11/28/05 13:36	
LCS Dup (5111225-BSD1)										Extracted: 11/28/05 11:01				
Mercury	EPA 7471A	1.02	---	0.100	mg/kg	1x	--	1.00	102%	(80-120)	1.98%	(20)	11/28/05 13:38	
Duplicate (5111225-DUP1)										QC Source: P5K0888-01 Extracted: 11/28/05 11:01				
Mercury	EPA 7471A	ND	---	0.0914	mg/kg dry	1x	ND	--	--	--	NR	(40)	11/28/05 13:41	
Matrix Spike (5111225-MS1)										QC Source: P5K0888-01 Extracted: 11/28/05 11:01				
Mercury	EPA 7471A	1.01	---	0.0973	mg/kg dry	1x	ND	0.973	104%	(75-125)	--	--	11/28/05 13:43	
Matrix Spike Dup (5111225-MSD1)										QC Source: P5K0888-01 Extracted: 11/28/05 11:01				
Mercury	EPA 7471A	0.999	---	0.101	mg/kg dry	1x	ND	1.01	98.9%	(75-125)	1.10%	(40)	11/28/05 13:46	



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: North Portland Bible College

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Polychlorinated Biphenyls per EPA Method 8082 - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5120147

Soil Preparation Method: EPA 3550

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5120147-BLK1)														
Extracted: 12/05/05 14:00														
Aroclor 1016	EPA 8082	ND	---	33.3	ug/kg	1x	--	--	--	--	--	--	12/07/05 16:02	
Aroclor 1221	"	ND	---	66.9	"	"	--	--	--	--	--	--	"	
Aroclor 1232	"	ND	---	33.3	"	"	--	--	--	--	--	--	"	
Aroclor 1242	"	ND	---	33.3	"	"	--	--	--	--	--	--	"	
Aroclor 1248	"	ND	---	33.3	"	"	--	--	--	--	--	--	"	
Aroclor 1254	"	ND	---	33.3	"	"	--	--	--	--	--	--	"	
Aroclor 1260	"	ND	---	33.3	"	"	--	--	--	--	--	--	"	
Surrogate(s): Decachlorobiphenyl Recovery: 81.1% Limits: 16-149%													"	12/07/05 16:02
LCS (5120147-BS1)														
Extracted: 12/05/05 14:00														
Aroclor 1016	EPA 8082	386	---	33.0	ug/kg	1x	--	331	117%	(57-135)	--	--	12/07/05 15:43	
Aroclor 1260	"	261	---	33.0	"	"	--	"	78.9%	(60-135)	--	--	"	
Surrogate(s): Decachlorobiphenyl Recovery: 73.2% Limits: 16-149%													"	12/07/05 15:43
Matrix Spike (5120147-MS1)														
QC Source: PSK0888-15 Extracted: 12/05/05 14:00														
Aroclor 1016	EPA 8082	413	---	37.3	ug/kg dry	1x	ND	374	110%	(37-145)	--	--	12/07/05 15:24	
Aroclor 1260	"	236	---	37.3	"	"	ND	"	63.1%	(25-144)	--	--	"	
Surrogate(s): Decachlorobiphenyl Recovery: 59.4% Limits: 16-149%													"	12/07/05 15:24
Matrix Spike Dup (5120147-MSD1)														
QC Source: PSK0888-15 Extracted: 12/05/05 14:00														
Aroclor 1016	EPA 8082	410	---	37.3	ug/kg dry	1x	ND	374	110%	(37-145)	0.729% (26)		12/07/05 15:05	
Aroclor 1260	"	232	---	37.3	"	"	ND	"	62.0%	(25-144)	1.71% (30)		"	
Surrogate(s): Decachlorobiphenyl Recovery: 58.0% Limits: 16-149%													"	12/07/05 15:05

North Creek Analytical - Portland

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GeoEngineers, Inc.	Project Name:	North Portland Bible College
15055 SW Sequoia Parkway, Suite 140	Project Number:	2787.024.00
Portland, OR 97224	Project Manager:	Chris Breemer
		Report Created: 12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5111244	Water Preparation Method: EPA 5030B
-------------------	-------------------------------------

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5111244-BLK1)										Extracted: 11/28/05 15:32				
Acetone	EPA 8260B	ND	---	25.0	ug/l	1x	---	---	---	---	---	---	11/28/05 19:01	
Benzene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Bromobenzene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Bromochloromethane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Bromodichloromethane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Bromoform	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Bromomethane	"	ND	---	5.00	"	"	---	---	---	---	---	---	"	
2-Butanone	"	ND	---	10.0	"	"	---	---	---	---	---	---	"	
n-Butylbenzene	"	ND	---	5.00	"	"	---	---	---	---	---	---	"	
sec-Butylbenzene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
tert-Butylbenzene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Carbon disulfide	"	ND	---	10.0	"	"	---	---	---	---	---	---	"	
Carbon tetrachloride	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Chlorobenzene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Chloroethane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Chloroform	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Chloromethane	"	ND	---	5.00	"	"	---	---	---	---	---	---	"	
2-Chlorotoluene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
4-Chlorotoluene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,2-Dibromo-3-chloropropane	"	ND	---	5.00	"	"	---	---	---	---	---	---	"	
Dibromochloromethane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,2-Dibromoethane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Dibromomethane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,2-Dichlorobenzene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,3-Dichlorobenzene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,4-Dichlorobenzene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Dichlorodifluoromethane	"	ND	---	5.00	"	"	---	---	---	---	---	---	"	
1,1-Dichloroethane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,2-Dichloroethane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,1-Dichloroethene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
cis-1,2-Dichloroethene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
trans-1,2-Dichloroethene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,2-Dichloropropane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,3-Dichloropropane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
2,2-Dichloropropane	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
1,1-Dichloropropene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
cis-1,3-Dichloropropene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
trans-1,3-Dichloropropene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Ethylbenzene	"	ND	---	1.00	"	"	---	---	---	---	---	---	"	
Hexachlorobutadiene	"	ND	---	4.00	"	"	---	---	---	---	---	---	"	
2-Hexanone	"	ND	---	10.0	"	"	---	---	---	---	---	---	"	

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Sarah Rockwell, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network



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GeoEngineers, Inc.	Project Name:	North Portland Bible College
15055 SW Sequoia Parkway, Suite 140	Project Number:	2787.024.00
Portland, OR 97224	Project Manager:	Chris Breemer
		Report Created: 12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results
North Creek Analytical - Portland

QC Batch: 5111244	Water Preparation Method: EPA 5030B
-------------------	-------------------------------------

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5111244-BLK1)														
Extracted: 11/28/05 15:32														
Isopropylbenzene	EPA 8260B	ND	---	2.00	ug/l	1x	--	--	--	--	--	--	11/28/05 19:01	
p-Isopropyltoluene	"	ND	---	2.00	"	"	--	--	--	--	--	--	"	
4-Methyl-2-pentanone	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
Methyl tert-butyl ether	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Methylene chloride	"	ND	---	5.00	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	2.00	"	"	--	--	--	--	--	--	"	
n-Propylbenzene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Styrene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,1,1,2-Tetrachloroethane	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,1,2,2-Tetrachloroethane	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Tetrachloroethene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Toluene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,2,3-Trichlorobenzene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,2,4-Trichlorobenzene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,1,1-Trichloroethane	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,1,2-Trichloroethane	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Trichloroethene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Trichlorofluoromethane	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,2,3-Trichloropropane	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,2,4-Trimethylbenzene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
1,3,5-Trimethylbenzene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Vinyl chloride	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
o-Xylene	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
m,p-Xylene	"	ND	---	2.00	"	"	--	--	--	--	--	--	"	
Surrogate(s): 4-BFB Recovery: 94.0% Limits: 75-120% " 11/28/05 19:01														
1,2-DCA-d4 108% 77-129% "														
Dibromofluoromethane 106% 80-121% "														
Toluene-d8 104% 80-120% "														



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results**North Creek Analytical - Portland**

QC Batch: 5111244

Water Preparation Method: EPA 5030B

Analyte	Method	Result	MDL ^A	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------------------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

LCS (5111244-BS1)

Extracted: 11/28/05 15:32

Benzene	EPA 8260B	20.9	---	1.00	ug/l	1x	--	20.0	104%	(80-120)	--	--	11/28/05 17:14	
Chlorobenzene	"	21.1	---	1.00	"	"	--	"	106%	(80-124)	--	--	"	
1,1-Dichloroethene	"	19.3	---	1.00	"	"	--	"	96.5%	(78-120)	--	--	"	
Toluene	"	21.3	---	1.00	"	"	--	"	106%	(80-124)	--	--	"	
Trichloroethene	"	22.9	---	1.00	"	"	--	"	114%	(80-132)	--	--	"	

Surrogate(s):	4-BFB	Recovery:	108%	Limits:	75-120%	"							11/28/05 17:14	
	1,2-DCA-d4		112%		77-129%	"							"	
	Dibromofluoromethane		112%		80-121%	"							"	
	Toluene-d8		113%		80-120%	"							"	

Matrix Spike (5111244-MS1)

QC Source: PSK0820-01

Extracted: 11/28/05 15:32

Benzene	EPA 8260B	27.0	---	1.00	ug/l	1x	6.43	20.0	103%	(80-124)	--	--	11/28/05 17:41	
Chlorobenzene	"	21.0	---	1.00	"	"	ND	"	105%	(72.9-134)	--	--	"	
1,1-Dichloroethene	"	18.3	---	1.00	"	"	ND	"	91.5%	(79.3-127)	--	--	"	
Toluene	"	18.1	---	1.00	"	"	0.430	"	88.4%	(79.7-131)	--	--	"	
Trichloroethene	"	19.6	---	1.00	"	"	ND	"	98.0%	(68.4-130)	--	--	"	

Surrogate(s):	4-BFB	Recovery:	104%	Limits:	75-120%	"							11/28/05 17:41	
	1,2-DCA-d4		106%		77-129%	"							"	
	Dibromofluoromethane		104%		80-121%	"							"	
	Toluene-d8		101%		80-120%	"							"	

Matrix Spike Dup (5111244-MSD1)

QC Source: PSK0820-01

Extracted: 11/28/05 15:32

Benzene	EPA 8260B	27.7	---	1.00	ug/l	1x	6.43	20.0	106%	(80-124)	2.56% (25)		11/28/05 18:07	
Chlorobenzene	"	21.8	---	1.00	"	"	ND	"	109%	(72.9-134)	3.74%	"	"	
1,1-Dichloroethene	"	19.1	---	1.00	"	"	ND	"	95.5%	(79.3-127)	4.28%	"	"	
Toluene	"	18.9	---	1.00	"	"	0.430	"	92.4%	(79.7-131)	4.32%	"	"	
Trichloroethene	"	20.5	---	1.00	"	"	ND	"	102%	(68.4-130)	4.49%	"	"	

Surrogate(s):	4-BFB	Recovery:	104%	Limits:	75-120%	"							11/28/05 18:07	
	1,2-DCA-d4		108%		77-129%	"							"	
	Dibromofluoromethane		104%		80-121%	"							"	
	Toluene-d8		100%		80-120%	"							"	

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

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Environmental Laboratory Network



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15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5120089

Soil Preparation Method: EPA 5035 Modified

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5120089-BLK1)														Extracted: 12/02/05 13:00
Acetone	EPA 8260B	ND	---	2500	ug/kg	1x	--	--	--	--	--	--	12/03/05 03:08	
Benzene	"	ND	---	20.0	"	"	--	--	--	--	--	--	"	
Bromobenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Bromochloromethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Bromodichloromethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Bromoform	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Bromomethane	"	ND	---	500	"	"	--	--	--	--	--	--	"	
2-Butanone	"	ND	---	999	"	"	--	--	--	--	--	--	"	
n-Butylbenzene	"	ND	---	500	"	"	--	--	--	--	--	--	"	
sec-Butylbenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
tert-Butylbenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Carbon disulfide	"	ND	---	999	"	"	--	--	--	--	--	--	"	
Carbon tetrachloride	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Chlorobenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Chloroethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Chloroform	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Chloromethane	"	ND	---	500	"	"	--	--	--	--	--	--	"	
2-Chlorotoluene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
4-Chlorotoluene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,2-Dibromo-3-chloropropane	"	ND	---	500	"	"	--	--	--	--	--	--	"	
Dibromochloromethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,2-Dibromoethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Dibromomethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,2-Dichlorobenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,3-Dichlorobenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,4-Dichlorobenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Dichlorodifluoromethane	"	ND	---	500	"	"	--	--	--	--	--	--	"	
1,1-Dichloroethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,2-Dichloroethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,1-Dichloroethene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
cis-1,2-Dichloroethene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
trans-1,2-Dichloroethene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,2-Dichloropropane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,3-Dichloropropane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
2,2-Dichloropropane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,1-Dichloropropene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
cis-1,3-Dichloropropene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
trans-1,3-Dichloropropene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Ethylbenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Hexachlorobutadiene	"	ND	---	400	"	"	--	--	--	--	--	--	"	
2-Hexanone	"	ND	---	999	"	"	--	--	--	--	--	--	"	

North Creek Analytical - Portland

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Sarah Rockwell, Project Manager

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5120089

Soil Preparation Method: EPA 5035 Modified

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5120089-BLK1)										Extracted: 12/02/05 13:00				
Isopropylbenzene	EPA 8260B	ND	---	200	ug/kg	1x	--	--	--	--	--	--	12/03/05 03:08	
p-Isopropyltoluene	"	ND	---	200	"	"	--	--	--	--	--	--	"	
4-Methyl-2-pentanone	"	ND	---	500	"	"	--	--	--	--	--	--	"	
Methyl tert-butyl ether	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Methylene chloride	"	ND	---	500	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	200	"	"	--	--	--	--	--	--	"	
n-Propylbenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Styrene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,1,1,2-Tetrachloroethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,1,2,2-Tetrachloroethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Tetrachloroethene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Toluene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,2,3-Trichlorobenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,2,4-Trichlorobenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,1,1-Trichloroethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,1,2-Trichloroethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Trichloroethene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Trichlorofluoromethane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,2,3-Trichloropropane	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,2,4-Trimethylbenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
1,3,5-Trimethylbenzene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
Vinyl chloride	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
o-Xylene	"	ND	---	99.9	"	"	--	--	--	--	--	--	"	
m,p-Xylene	"	ND	---	200	"	"	--	--	--	--	--	--	"	
Surrogate(s):													12/03/05 03:08	
4-BFB		Recovery:	93.5%	Limits:	42.6-130%	0.01x							"	
1,2-DCA-d4			94.0%		57.3-144%	"							"	
Dibromofluoromethane			90.0%		45.5-130%	"							"	
Toluene-d8			98.5%		42.1-144%	"							"	

North Creek Analytical - Portland

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Portland, OR 97224

Project Name: **North Portland Bible College**Project Number: **2787 024.00**Project Manager: **Chris Breemer**

Report Created:

12/19/05 14:13

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5120089

Soil Preparation Method: EPA 5035 Modified

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
---------	--------	--------	------	-----	-------	-----	---------------	-----------	-------	----------	-------	----------	----------	-------

LCS (5120089-BS1)

Extracted: 12/02/05 13:00

Benzene	EPA 8260B	2010	---	19.9	ug/kg	1x	--	1990	101%	(81.9-125)	--	--	12/02/05 16:39	
Chlorobenzene	"	1990	---	99.5	"	"	--	"	100%	(79.2-125)	--	--	"	
1,1-Dichloroethene	"	1920	---	99.5	"	"	--	"	96.5%	(66.1-125)	--	--	"	
Toluene	"	2010	---	99.5	"	"	--	"	101%	(80-125)	--	--	"	
Trichloroethene	"	1980	---	99.5	"	"	--	"	99.5%	(76-125)	--	--	"	

Surrogate(s):	4-BFB	Recovery:	104%	Limits:	42.6-130%	0.01x							12/02/05 16:39	
	1,2-DCA-d4		96.0%		57.3-144%	"							"	
	Dibromofluoromethane		96.3%		45.5-130%	"							"	
	Toluene-d8		99.5%		42.1-144%	"							"	

Matrix Spike (5120089-MS1)

QC Source: PSL0071-02

Extracted: 12/02/05 13:00

Benzene	EPA 8260B	2660	---	26.3	ug/kg dry	1x	ND	2630	101%	(68.5-125)	--	--	12/02/05 23:02	
Chlorobenzene	"	2750	---	132	"	"	ND	"	105%	(65.9-125)	--	--	"	
1,1-Dichloroethene	"	2580	---	132	"	"	ND	"	98.1%	(55.8-125)	--	--	"	
Toluene	"	2700	---	132	"	"	ND	"	103%	(70.3-125)	--	--	"	
Trichloroethene	"	2680	---	132	"	"	ND	"	102%	(65.5-125)	--	--	"	

Surrogate(s):	4-BFB	Recovery:	104%	Limits:	42.6-130%	0.01x							12/02/05 23:02	
	1,2-DCA-d4		96.6%		57.3-144%	"							"	
	Dibromofluoromethane		99.2%		45.5-130%	"							"	
	Toluene-d8		100%		42.1-144%	"							"	

Matrix Spike Dup (5120089-MSD1)

QC Source: PSL0071-02

Extracted: 12/02/05 13:00

Benzene	EPA 8260B	2750	---	26.3	ug/kg dry	1x	ND	2630	105%	(68.5-125)	3.33%	(25)	12/02/05 23:30	
Chlorobenzene	"	2850	---	132	"	"	ND	"	108%	(65.9-125)	3.57%	"	"	
1,1-Dichloroethene	"	2550	---	132	"	"	ND	"	97.0%	(55.8-125)	1.17%	"	"	
Toluene	"	2800	---	132	"	"	ND	"	106%	(70.3-125)	3.64%	"	"	
Trichloroethene	"	2770	---	132	"	"	ND	"	105%	(65.5-125)	3.30%	"	"	

Surrogate(s):	4-BFB	Recovery:	103%	Limits:	42.6-130%	0.01x							12/02/05 23:30	
	1,2-DCA-d4		96.2%		57.3-144%	"							"	
	Dibromofluoromethane		98.9%		45.5-130%	"							"	
	Toluene-d8		101%		42.1-144%	"							"	

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GeoEngineers, Inc.	Project Name: North Portland Bible College	Report Created:
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	12/19/05 14:13
Portland, OR 97224	Project Manager: Chris Breemer	

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results
North Creek Analytical - Portland

QC Batch: 5120141 Soil Preparation Method: EPA 3550

Analyte	Method	Result	MDL ^A	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5120141-BLK1)														
Extracted: 12/05/05 13:50														
Benzo (e) pyrene	EPA 8270m	ND	---	13.4	ug/kg	1x	--	--	--	--	--	--	12/06/05 20:58	P-04
Acenaphthene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Acenaphthylene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	P-03
Chrysene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Dibenzo (a,h) anthracene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	13.4	"	"	--	--	--	--	--	--	"	
Surrogate(s): Fluorene-d10		Recovery: 103%		Limits: 32-134%	"								12/06/05 20:58	
Pyrene-d10		119%		41-152%	"								"	
Benzo (a) pyrene-d12		110%		36-145%	"								"	

LCS (5120141-BS1)								Extracted: 12/05/05 13:50						
Acenaphthene	EPA 8270m	156	---	13.3	ug/kg	1x	--	165	94.5%	(33-139)	--	--	12/06/05 20:29	
Benzo (a) pyrene	"	170	---	13.3	"	"	--	"	103%	(45-149)	--	--	"	
Pyrene	"	153	---	13.3	"	"	--	"	92.7%	(39-138)	--	--	"	
Surrogate(s): Fluorene-d10		Recovery: 97.9%		Limits: 32-134%		"		12/06/05 20:29						
Pyrene-d10		105%		41-152%		"		"						
Benzo (a) pyrene-d12		112%		36-145%		"		"						

Matrix Spike (5120141-MS1)				QC Source: P5K0888-15			Extracted: 12/05/05 13:50					R-05	
Acenaphthene	EPA 8270m	199	---	74.8	ug/kg dry	5x	ND	186	107%	(33-139)	--	--	12/07/05 16:56
Benzo (a) pyrene	"	207	---	74.8	"	"	ND	"	111%	(45-149)	--	--	"
Pyrene	"	228	---	74.8	"	"	ND	"	123%	(39-138)	--	--	"
Surrogate(s): Fluorene-d10		Recovery: 115%	Limits: 32-134%		"		12/07/05 16:56						
Pyrene-d10		133%	41-152%		"		"						
Benzo (a) pyrene-d12		134%	36-145%		"		"						

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
 Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: 2787.024.00

Project Manager: Chris Breemer

Report Created:

12/19/05 14:13

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Laboratory Quality Control Results

North Creek Analytical - Portland

QC Batch: 5120141

Soil Preparation Method: EPA 3550

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (5120141-MSD1)		QC Source: P5K0888-15										Extracted: 12/05/05 13:50		R-05
Acenaphthene	EPA 8270m	198	---	188	ug/kg dry	5x	ND	187	106%	(33-139)	0.504%	(60)	12/07/05 17:27	
Benzo (a) pyrene	"	215	---	188	"	"	ND	"	115%	(45-149)	3.79%	"	"	
Pyrene	"	243	---	188	"	"	ND	"	130%	(39-138)	6.37%	"	"	
Surrogate(s): Fluorene-d10		Recovery:	114%	Limits:	32-134%									12/07/05 17:27
Pyrene-d10			129%		41-132%									"
Benzo (a) pyrene-d12			132%		36-145%									"

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GeoEngineers, Inc. 15055 SW Sequoia Parkway, Suite 140 Portland, OR 97224	Project Name: North Portland Bible College Project Number: 2787.024.00 Project Manager: Chris Breemer
--	--

Report Created:
 12/19/05 14:13

TCLP Extraction Only - Laboratory Quality Control Results
North Creek Analytical - Portland

QC Batch: 5120409	Soil Preparation Method: EPA 1311
-------------------	-----------------------------------

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (5120409-BLK1)										Extracted: 12/09/05 11:41				
Extraction	EPA 1311	ND	—	1.00	N/A	1x	--	--	--	--	--	--	12/09/05 16:04	



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GeoEngineers, Inc.	Project Name: North Portland Bible College	
15055 SW Sequoia Parkway, Suite 140	Project Number: 2787.024.00	Report Created: 12/19/05 14:13
Portland, OR 97224	Project Manager: Chris Breemer	

Percent Dry Weight (Solids) per Standard Methods - Laboratory Quality Control Results
 North Creek Analytical - Portland

QC Batch: 5111144	Soil Preparation Method: Dry Weight
-------------------	-------------------------------------

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (5111144-DUP1)			QC Source: P5K0807-05				Extracted: 11/23/05 10:24							
% Solids	NCA SOP	91.4	---	1.00	% by Weight	1x	91.3	--	--	--	0.109% (20)		11/28/05 12:01	
Duplicate (5111144-DUP2)			QC Source: P5K0807-06				Extracted: 11/23/05 10:24							
% Solids	NCA SOP	75.9	---	1.00	% by Weight	1x	76.4	--	--	--	0.657% (20)		11/28/05 12:01	
Duplicate (5111144-DUP3)			QC Source: P5K0888-18				Extracted: 11/23/05 10:24							
% Solids	NCA SOP	85.2	---	1.00	% by Weight	1x	85.3	--	--	--	0.117% (20)		11/28/05 12:01	



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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Project Name: **North Portland Bible College**

Project Number: **2787.024.00**

Project Manager: **Chris Breemer**

Report Created:

12/19/05 14:13

Notes and Definitions

Report Specific Notes:

- B - Analyte detected in the method blank.
- B-17 - Analyte was detected in the blank at greater than one-half of the MRL but less than 1/10 the concentration in the sample.
- D-09 - Detected hydrocarbons in the diesel range appear to be due to overlap of heavy/oil range hydrocarbons.
- P-03 - Benzo(j)fluoranthene coelutes with Benzo(k)fluoranthene. The reported result is a summation of the isomers and the concentration is based on the response factor of Benzo(k)fluoranthene
- P-04 - Benzo(e)pyrene concentration is based on the response factor of Benzo(a)pyrene, and has not been calibrated independently.
- Q-02 - The matrix spike recovery, and/or RPD, for this QC sample is outside of established control limits due to sample matrix interference.
- Q-14 - The matrix spike recovery, and/or RPD, for this QC sample is outside of control limits due to a non-homogeneous sample matrix.
- R-03 - The reporting limit for this analyte was raised due to matrix interference.
- R-05 - Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
- R-07 - Reporting limit raised due to dilution necessary for analysis. Reporting limit adjusted to report result below the MRL, but within the calibration range.
- S-01 - The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
- S-02 - The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present.

Laboratory Reporting Conventions:

- DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
- ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
- NR / NA - Not Reported / Not Available
- dry - Sample results reported on a dry weight basis. Reporting Limits have been corrected for %Solids.
- wet - Sample results and reporting limits reported on a wet weight basis (as received).
- RPD - Relative Percent Difference. (RPDs calculated using Results, not Percent Recoveries).
- MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated results.
- Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

North Creek Analytical - Portland

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GeoEngineers, Inc.

15055 SW Sequoia Parkway, Suite 140
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Project Name:

North Portland Bible College

Project Number:

2787.024.00

Project Manager:

Chris Breemer

Report Created:

12/19/05 14:13



APPENDIX C
RISK-BASED CONCENTRATIONS FOR
PETROLEUM HYDROCARBONS WORKBOOK
OUTPUT

Figure 1. The effect of the number of nodes on the performance of the proposed algorithm. The figure shows that as the number of nodes increases, the performance of the proposed algorithm improves, and the error rate decreases. The performance is measured by the average number of iterations required to reach the optimal solution. The error rate is measured by the percentage of nodes that are not in the optimal solution. The figure shows that the proposed algorithm can handle a large number of nodes efficiently.

TPH Fraction Composition (Weight Fraction)

Fuel Fractions	Site-Specific Data		Generic Weight Fraction Data			
	Raw Data mg/kg (ppm)	Adjusted Data mg/kg (ppm)	Weight Fraction	Gasoline	Diesel	Mineral Oil
Aliphatic C5-C6			0.00E+00	2.06E-01	0.00E+00	0.00E+00
Aliphatic >C6-C8			0.00E+00	2.20E-01	0.00E+00	0.00E+00
Aliphatic >C8-C10	11	11	4.25E-03	9.00E-02	2.00E-02	1.00E-03
Aliphatic >C10-C12	6	6	2.35E-03	3.00E-02	7.00E-02	3.00E-03
Aliphatic >C12-C16	74	74	2.79E-02	0.00E+00	3.50E-01	1.60E-01
Aliphatic >C16-C21	134	134	5.04E-02	0.00E+00	3.40E-01	7.00E-01
Aliphatic >C21-C34	1640	1640	6.17E-01	0.00E+00	0.00E+00	0.00E+00
Aromatic >C8-C10	11	11	4.14E-03	9.02E-02	2.52E-03	1.00E-03
Aromatic >C10-C12	11	11	4.21E-03	2.25E-02	7.40E-03	1.00E-03
Aromatic >C12-C16	11	11	4.25E-03	0.00E+00	8.00E-02	7.00E-03
Aromatic >C16-C21	62	62	2.32E-02	0.00E+00	1.20E-01	8.00E-02
Aromatic >C21-C34	698	698	2.62E-01	0.00E+00	0.00E+00	4.60E-02
n-Hexane	0.0	0.0	0.00E+00	2.40E-02	0.00E+00	0.00E+00
Benzene	0.0	0.0	4.14E-06	2.50E-02	2.90E-04	0.00E+00
Toluene	0.1	0.1	2.07E-05	1.20E-01	1.80E-03	0.00E+00
Ethylbenzene	0.1	0.1	2.07E-05	2.00E-02	6.80E-04	0.00E+00
Total Xylenes	0.1	0.1	4.32E-05	1.10E-01	5.00E-03	0.00E+00
1,2,4-Trimethylbenzene	0.1	0.1	2.07E-05	3.00E-02	0.00E+00	0.00E+00
1,3,5-Trimethylbenzene	0.1	0.1	2.07E-05	9.80E-03	1.80E-03	0.00E+00
Naphthalene	0.1	0.1	4.14E-05	2.50E-03	2.60E-03	0.00E+00
Total	2660	2660	1.00	1.00	1.00	1.00

Use one of the following two options for site-specific TPH RBC calculations.

OPTION 1: Estimate TPH Fractions		(1) Enter TPH data (mg/kg or ppm) into the cell on the right. (2) Enter BTEX, TMB, and naphthalene data in the "Raw Data" column above. (3) Use one of the buttons at the right to identify the predominant product.		Gasoline Estimate Diesel Estimate
OR		OPTION 2: Use VPH and EPH Results		Gasoline Fractions Non-Gas Fractions

For references, please refer to *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (DEQ, 2003).

TPH Fraction Composition (Weight Fraction)

Fuel Fractions	Site-Specific Data		Generic Weight Fraction Data			
	Raw Data mg/kg (ppm)	Adjusted Data mg/kg (ppm)	Weight Fraction	Gasoline	Diesel	Mineral Oil
Aliphatic C5-C6			0.00E+00	2.06E-01	0.00E+00	0.00E+00
Aliphatic >C5-C8			0.00E+00	2.20E-01	0.00E+00	0.00E+00
Aliphatic >C8-C10	11	11	4.25E-03	9.00E-02	2.00E-02	1.00E-03
Aliphatic >C10-C12	6	6	2.55E-03	3.00E-02	7.00E-02	3.00E-03
Aliphatic >C12-C16	74	74	2.79E-02	0.00E+00	3.50E-01	1.60E-01
Aliphatic >C16-C21	134	134	5.04E-02	0.00E+00	3.40E-01	7.00E-01
Aliphatic >C21-C34	1640	1640	6.17E-01	0.00E+00	0.00E+00	0.00E+00
Aromatic >C8-C10	11	11	4.14E-03	9.02E-02	2.52E-03	1.00E-03
Aromatic >C10-C12	11	11	4.21E-03	2.25E-02	7.40E-03	1.00E-03
Aromatic >C12-C16	11	11	4.23E-03	0.00E+00	9.00E-02	7.00E-03
Aromatic >C16-C21	62	62	2.32E-02	0.00E+00	1.20E-01	8.00E-02
Aromatic >C21-C34	698	698	2.82E-01	0.00E+00	0.00E+00	4.60E-02
n-Hexane	0.0	0.0	0.00E+00	2.40E-02	0.00E+00	0.00E+00
Benzene	0.0	0.0	4.14E-06	2.50E-02	2.90E-04	0.00E+00
Toluene	0.1	0.1	2.07E-05	1.20E-01	1.80E-03	0.00E+00
Ethylbenzene	0.1	0.1	2.07E-05	2.00E-02	6.80E-04	0.00E+00
Total Xylenes	0.1	0.1	4.32E-05	1.10E-01	5.00E-03	0.00E+00
1,2,4-trimethylbenzene	0.1	0.1	2.07E-05	3.00E-02	0.00E+00	0.00E+00
1,3,5-trimethylbenzene	0.1	0.1	2.07E-05	9.80E-03	1.50E-03	0.00E+00
Naphthalene	0.1	0.1	4.14E-05	2.50E-03	2.60E-03	0.00E+00
Total	2860	2860	1.00	1.00	1.00	1.00

Use one of the following two options for site-specific TPH RBC calculations:

OPTION 1: (1) Enter TPH data (mg/kg or ppm) into the cell on the right.
Estimate TPH Fractions (2) Enter BTEX, TMB, and naphthalene data in the "Raw Data" column above.
 (3) Use one of the buttons at the right to identify the predominant product.

OR
OPTION 2: (1) Enter TPH fraction and constituent data in the "Raw Data" column above.
Use VPH and EPH Results (2) Use one of the buttons at the right to identify the predominant product.

For references, please refer to *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (DEQ, 2003).

Fuel Fraction	RBCss			RBCso			RBCsi			RBCsw			RBCw			RBCxw			RBCwe			RBCair			
	Residential	Urban	Occupational	Construction Worker	Excavation Worker	Residential	Urban	Residential	Occupational	Residential	Urban	Residential	Occupational	Residential	Urban	Residential	Occupational	Residential	Urban	Residential	Occupational	Residential	Urban	Occupational	
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Generic Gasoline	Aliphatic C5-C6	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E+04	3.5E+04	1.4E+05	7.4E+06	8.3E+04	2.1E+04	3.1E+06	2.1E+04	2.1E+04	2.1E+04	8.3E+04	
	Aliphatic >C6-C8	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E+04	3.5E+04	1.4E+05	7.4E+06	8.3E+04	2.1E+04	3.1E+06	2.1E+04	2.1E+04	2.1E+04	8.3E+04	
	Aliphatic >C8-C10	5.6E-03	9.0E-03	3.9E-03	3.9E-03	8.9E-04	3.6E-03	3.6E-03	9.0E-04	1.3E-05	5.3E-05	1.8E+03	1.8E+03	4.0E+04	4.0E+04	1.6E+05	4.9E+06	1.8E+03	1.1E+03	1.1E+03	1.1E+03	1.1E+03	1.1E+03	4.4E+03	
	Aliphatic >C10-C12	2.8E-03	2.5E-03	1.9E-03	1.8E-03	4.8E-05	1.9E-04	1.6E-04	1.3E-05	1.9E-06	1.9E-06	4.7E-07	1.1E+03	1.4E+03	1.4E+03	5.5E+03	1.1E+05	1.2E+03	1.2E+03	1.4E+04	1.1E+03	1.1E+03	1.1E+03	4.4E+03	
	Aliphatic >C12-C16	2.6E-02	2.6E-02	2.7E-02	2.7E-02	7.4E-05	4.4E-05	1.5E-04	1.2E-05	1.5E-07	1.5E-07	3.0E-06	3.0E-06	3.7E+03	3.7E+03	1.5E+04	2.5E+04	2.8E+02	1.1E+03	1.1E+03	1.1E+03	1.1E+03	1.1E+03	4.4E+03	
	Aliphatic >C16-C21	2.4E-03	2.4E-03	2.4E-03	2.7E-07	7.5E-08	1.1E-06	1.1E-06	9.0E-07	7.5E-08	3.3E-11	3.3E-11	8.3E-12	1.8E+04	7.3E+04	2.9E+05	4.4E+03	2.0E+02	2.0E+02	7.3E+03	7.3E+03	7.3E+03	7.3E+03	2.9E+04	
Generic Diesel or Heating Oil	Aliphatic >C21-C34	2.9E-02	2.9E-02	3.0E-02	2.8E-10	8.2E-03	1.1E-09	1.1E-09	9.1E-10	7.6E-11	1.8E-15	4.1E-16	9.6E+02	7.3E+04	2.2E+02	2.2E+02	9.6E+00	9.6E+00	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.2E+02	9.6E+02	
	Aromatic >C9-C10	2.0E-02	2.0E-02	1.2E-02	4.3E-03	2.1E-03	1.7E-02	1.4E-02	1.2E-03	3.4E-02	3.4E-02	8.8E-03	3.4E+02	3.4E+02	1.1E+06	1.1E+06	5.7E+04	5.7E+04	2.7E+02	2.7E+02	2.7E+02	2.7E+02	2.7E+02	8.8E+02	
	Aromatic >C10-C12	1.7E-02	1.5E-02	9.6E-03	8.7E-03	2.1E-03	1.8E-03	1.5E-03	1.2E-04	1.2E-02	1.2E-02	3.1E-03	2.4E+02	2.4E+02	1.9E+05	1.9E+05	1.9E+05	1.9E+05	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.2E+02	8.8E+02	
	Aromatic >C12-C16	1.0E-02	9.5E-03	7.9E-03	7.8E-03	1.5E-02	1.4E-04	1.4E-04	1.1E-04	9.5E-06	6.3E-04	1.3E+03	4.0E+06	4.0E+06	4.0E+06	4.0E+06	5.7E+06	4.8E+05	4.8E+05	2.2E+02	2.2E+02	2.2E+02	2.2E+02	8.8E+02	
	Aromatic >C16-C21	5.8E-02	5.7E-02	5.4E-02	8.3E-06	2.1E-01	3.3E-05	3.3E-05	2.7E-05	2.3E-06	2.3E-03	5.8E-04	1.8E+02	1.8E+02	1.8E+02	1.8E+02	1.6E+07	9.4E+05	9.4E+05	1.1E+02	1.1E+02	1.1E+02	1.1E+02	4.4E+02	
	Aromatic >C21-C34	8.2E-01	8.3E-01	8.5E-01	3.8E-08	2.3E-01	1.0E-07	1.0E-07	1.3E-07	1.1E-08	3.4E-05	3.4E-05	8.8E-06	1.1E+03	1.1E+03	1.1E+03	1.8E+08	1.8E+07	1.8E+07	1.1E+02	1.1E+02	1.1E+02	1.1E+02	4.4E+02	
RBCa	n-Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.1E+04	6.1E+04	2.4E+05	2.4E+05	2.7E+03	2.7E+03	3.3E+04	3.3E+04	3.3E+04	3.3E+04	8.3E+02	
	Benzene	1.0E-04	1.6E-04	1.1E-04	8.4E-05	2.3E-05	6.8E-04	1.7E-03	1.4E-04	1.1E-02	1.1E-02	2.7E-03	4.4E+01	4.4E+01	2.8E+05	2.8E+05	1.9E+04	1.9E+04	1.9E+04	3.1E+01	3.1E+01	3.1E+01	3.1E+01	1.3E+02	
	Toluene	4.2E-05	4.2E-05	2.1E-05	1.2E-05	3.2E-06	2.5E-04	2.0E-04	2.0E-04	8.4E-04	8.4E-04	2.1E-04	3.4E+06	3.4E+06	3.4E+06	3.4E+06	2.1E+05	2.1E+05	2.1E+05	4.0E+02	4.0E+02	4.0E+02	4.0E+02	1.8E+03	
	RBCsw	2.8E-05	2.8E-05	1.9E-05	1.0E-05	4.4E-06	6.7E-06	2.2E-05	2.2E-05	1.7E-05	9.0E+06	9.0E+06	3.8E+07	9.0E+06	9.0E+06	9.0E+06	5.3E+05	5.3E+05	5.3E+05	1.1E+05	1.1E+05	1.1E+05	1.1E+05	4.2E+03	
	RBCw	2.9E-04	1.9E-04	1.3E-04	1.3E-04	4.2E-05	5.1E-04	4.2E-04	4.2E-04	3.5E-05	1.8E-03	1.8E-03	8.2E+02	2.1E+02	2.1E+02	8.2E+02	6.0E+04	6.0E+04	6.0E+04	1.1E+02	1.1E+02	1.1E+02	1.1E+02	4.2E+02	
	RBCxw	2.3E-03	2.1E-03	7.7E-04	2.4E-04	4.9E-05	9.7E-04	8.0E-04	8.0E-04	1.0E-03	4.1E-03	4.1E-03	6.0E+01	1.2E+01	1.2E+01	6.0E+04	4.3E+03	4.3E+03	4.3E+03	6.2E+00	6.2E+00	6.2E+00	6.2E+00	2.5E+01	
RBCwe	1,2,4-trimethylbenzene	2.3E-03	2.3E-03	2.4E-04	2.3E-04	5.3E-06	3.1E-04	9.6E-04	9.6E-04	3.8E-03	3.8E-03	9.0E-04	1.2E+01	1.2E+01	5.5E+04	3.2E+03	3.2E+03	3.2E+03	6.2E+00	6.2E+00	6.2E+00	6.2E+00	6.2E+00	2.5E+01	
	1,3,5-trimethylbenzene	2.4E-03	1.8E-03	6.9E-04	1.3E-04	7.0E-05	4.5E-04	1.1E-04	1.1E-04	8.3E-03	8.3E-03	2.1E-03	1.4E+01	1.4E+01	3.0E+04	3.0E+04	3.0E+04	3.0E+04	1.3E+00	1.3E+00	1.3E+00	1.3E+00	1.3E+00	1.3E+01	
Date	→																								
TPH RBC'	5,400	11,000	69,000	22,000	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	230	230	930	>S	>S	>S	>S	>S	>S	300	1,200	
Default TPH RBCs	Generic Gasoline	720	1,500	22,000	13,000	>MAX	4,500	>MAX	80,000	>MAX	140	140	>MAX	100	100	400	>S	>S	>S	>S	>S	>S	650	2,000	
	Generic Diesel / Heating Oil	3,900	6,300	70,000	23,000	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	88	88	350	>S	>S	>S	>S	>S	>S	120	400	
	Generic Mineral Insulating Oil	9,800	20,000	>MAX	40,000	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	>MAX	290	290	1,100	>S	>S	>S	>S	>S	>S	480	2,000	

* The TPH RBCs are based on a Hazard Index = 1 for the sum of all aliphatic fractions, aromatic fractions, and constituents present in the product.

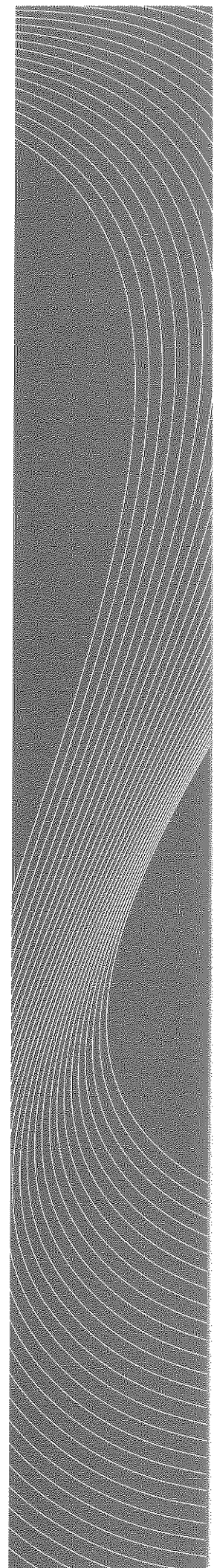
The data in the gray area of the main table above represent the following:

1. For **direct pathways** the data are the RBCs for the specified fuel fraction or constituent.
2. For **indirect pathways** the data are the hazard quotients for the specified fuel fraction or constituent.

For notes and references, please refer to *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (DEQ, 2003).

APPENDIX D

REPORT LIMITATIONS AND GUIDELINES FOR USE



APPENDIX D REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This Appendix provides information to help you manage your risks with respect to the use of this report.

ENVIRONMENTAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report has been prepared for the exclusive use of the Oregon Department of Environmental Quality (DEQ). This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except the DEQ should rely on this environmental report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

THIS ENVIRONMENTAL REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

This report has been prepared for the North Portland Bible College site in Portland, Oregon. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

RELIANCE CONDITIONS FOR THIRD PARTIES

Our report was prepared for the exclusive use of our Client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted environmental practices in this area at the time this report was prepared.

ENVIRONMENTAL REGULATIONS ARE ALWAYS EVOLVING

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal

¹ Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

UNCERTAINTY MAY REMAIN EVEN AFTER THIS FOCUSED SI IS COMPLETED

No site investigation can wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely-spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

SUBSURFACE CONDITIONS CAN CHANGE

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

SOIL AND GROUNDWATER END USE

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

MOST ENVIRONMENTAL FINDINGS ARE PROFESSIONAL OPINIONS

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

DO NOT REDRAW THE EXPLORATION LOGS

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

READ THESE PROVISIONS CLOSELY

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could

lead to disappointments, claims and disputes. GeoEngineers includes these explanatory “limitations” provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these “Report Limitations and Guidelines for Use” apply to your project or site.

GEOTECHNICAL, GEOLOGIC AND GEOENVIRONMENTAL REPORTS SHOULD NOT BE INTERCHANGED

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

BIOLOGICAL POLLUTANTS

GeoEngineers’ Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term “Biological Pollutants” includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If Client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.